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Agricultural College Bulletin

SERIES 1. **ISSUED QUARTERLY.** **No. 9.**

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Oregon
Agricultural
College

1904-1905

ANNUAL CATALOGUE

OF THE

AGRICULTURAL COLLEGE

OF THE

STATE OF OREGON

FOR

1904-1905

AND

ANNOUNCEMENTS FOR 1905-1906

CORVALLIS, OREGON

AGRICULTURAL COLLEGE PRESS
1905

Calendar--1905-1906.

SEPTEMBER.

S.	M.	T.	W.	T.	F.	S.
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APRIL.

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MAY.

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AUGUST.

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CALENDAR.

FIRST TERM.

Entrance Examinations for Freshmen, Friday and Saturday, September 15–16, 1905.

Registration, Monday, September 18, 1905.

Recitations begin Tuesday, September 19, 1905.

Final Examinations, Monday, Tuesday, and Wednesday December 18–20, 1905.

SECOND TERM.

Registration, Wednesday, January 3, 1906.

Recitations begin Thursday, January 4, 1906.

Final Examinations, Monday, Tuesday, and Wednesday, March 19–21, 1906.

THIRD TERM.

Registration, Monday, March 26, 1906.

Recitations begin Tuesday, March 27, 1906.

Baccalaureate Sermon, Sunday, June 10, 1906.

Final Examinations, Monday and Tuesday, June 11–12, 1906.

Commencement Day, Wednesday, June 13, 1906.

NOTE.—All absences will be charged from the first class recitation of the term. At the close of each term of school, students will receive certificates of standing from their instructors. Standings of students will be sent to parents or guardians on application to the President or the Registrar.

BOARD OF REGENTS

OF THE

OREGON AGRICULTURAL COLLEGE

AND

EXPERIMENT STATION.

OFFICERS.

Hon. J. K. Weatherford, *President*	Albany.
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Hon. B. F. Irvine, *Treasurer*	Corvallis.

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Hon. J. H. Ackerman, *Supt. of Public Instruction*	Salem.
Hon. B. G. Leedy, *Master of State Grange*	Tigardville.

APPOINTED BY THE GOVERNOR.

	TERM EXPIRES.
Hon. Wm. E. Yates	Corvallis, 1907.
Hon. John D. Daly	Portland, 1907.
Hon. B. F. Irvine	Corvallis, 1907.
Hon. J. T. Apperson	Parkplace, 1910.
Hon. W. P. Keady	Portland, 1910.
Hon. J. K. Weatherford	Albany, 1910.
Hon. John D. Olwell	Central Point, 1912.
Hon. William W. Cotton	Portland, 1912.
Hon. Walter M. Pierce	Pendleton, 1912.

STANDING COMMITTEES

OF THE

BOARD OF REGENTS.

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J. T. Apperson, *Chairman*, W. E. Yates, B. G. Leedy.

COLLEGE COMMITTEE.

B. F. Irvine, *Chairman*, W. P. Keady, ———

STATION COMMITTEE.

———, J. D. Olwell, William W. Cotton.

FACULTY AND INSTRUCTORS.

THOMAS MILTON GATCH, A. M., PH. D., President,
Political and Mental Science.

JAMES WITHYCOMBE, M. AGR.,
Professor of Agriculture.

FREDERICK BERCHTOLD, A. M.,
Professor of English and Literature.

MARGARET COMSTOCK SNELL, M. D.,
Professor of Household Science and Hygiene.

GRANT ADELBERT COVELL, M. E.,
Professor of Mechanics and Mechanical Engineering.

JOHN B. HORNER, A. M., LITT. D., Registrar,
Professor of History and Latin.

GORDON VERNON SKELTON, C. E.,
Professor of Mathematics and Engineering.

ARTHUR BURTON CORDLEY, M. S.,
Professor of Zoölogy.

EDWARD RALPH LAKE, M. S.,
Professor of Botany and Horticulture.

ABRAHAM LINCOLN KNISELY, M. S.,
Professor of Chemistry.

HELEN VIRGINIA CRAWFORD, B. S.,
Professor of Elocution.

GEORGE COOTE,
Professor of Floriculture and Gardening.

JOHN FULTON B. Agri., B. S.,
Associate Professor of Chemistry.

THOMAS HENRY CRAWFORD, A. M.,
Commerce.

FACULTY AND INSTRUCTORS.

IDA BURNETT CALLAHAN, B. S.,
Assistant Professor of English.

FRED LEROY KENT, B. AGR.,
Associate Professor of Agriculture and Dairying.

ERNEST CHESNEY HAYWARD, E. E.,
Assistant Professor of Mechanical and Electrical Engineering.

CHARLES LESLIE JOHNSON, B. S.,
Assistant Professor of Mathematics.

EMILE FRANCIS PERNOT, M. S.,
Professor of Bacteriology.

CLARENCE MELVILLE McKELLIPS, PH. C.,
Assistant Chemist and Instructor in Pharmacy.

FRANK EDWARDS, B. M. E.,
Instructor in Chemistry.

WILLIAM THOMAS SHAW, B. AGR., M. S.,
Instructor in Biology.

MARK CLYDE PHILLIPS, B. M. E.,
Instructor in Mechanical Drawing and Ironwork.

AMMEE LEVERETT,
Director of the Art Department.

LEIUT. DENNIS PATRICK QUINLAN, U. S. A. Commandant,
Military Science and Tactics.

HELEN LUCILE HOLGATE, B. H. E.,
Stenography and Typewriting.

FLORENCE McDOWELL GREEN, Mus. B.,
Instructor in Vocal Music.

* GERARD TAILLANDIER,
Piano, and Instructor in German.

NICHOLAS TARTAR,
Instructor in Mathematics and English.

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* Terms for private instruction in French can be had by applying to Professor Taillandier.

MARY ELIZABETH SUTHERLAND, B. S.,
Instructor in Dressmaking.

WILL ORIAN TRINE,
Physical Director.

THOMAS BILYEU, B. S.,
Instructor in Woodwork.

RICHARD JEFFREY NICHOLS, B. S.,
Librarian.

OTHER OFFICERS.

THOMAS HENRY CRAWFORD, A. M.,
Clerk and Purchasing Agent.

RICHARD JEFFREY NICHOLS, B. S.
Librarian.

GEORGE BRELSFORD KEADY,
Printer.

HELEN LUCILE HOLGATE, B. H. E.,
Stenographer.

OTTO FRANK LUDWIG HERSE,
Assistant Printer.

WALTER JAMES KENT,
Foreman of the Farm.

JOHN ANDERSON SPANGLER,
Engineer.

ELLSWORTH ERWIN,
Janitor.

ROBERT CLEMENT WILLS,
Carpenter.

FACULTY COMMITTEES.

ACCREDITED SCHOOLS.—Pernot, Covell, Leverett.

ADVANCED STANDING.—Knisely, Kent, Shaw, Phillips.

ADVISORY COMMITTEE.—Covell, Snell, Horner, Withycombe.

ATHLETICS.—Trine, Hayward, Shaw, Fulton.

DISCIPLINE.—Skelton, Horner, Callahan.

EMPLOYMENT.—Coote, Withycombe, Knisely, Edwards.

ENTRANCE EXAMINATIONS.—Johnson, Tartar, Berchtold, Callahan.

GRADUATES.—Berchtold, Kent, Phillips.

LECTURES AND LITERARY ENTERTAINMENTS.—Helen V. Crawford, Edwards, Horner, Shaw.

LEGISLATION.—Withycombe, Covell, Leverett.

LIBRARY.—Callahan, Withycombe, Holgate, Horner.

LITERARY SOCIETIES.—Snell, McKellips, Pernot.

MASTER'S DEGREE.—Lake, Skelton, Cordley.

MUSIC.—Thomas H. Crawford, Green, Fulton, Taillandier, Holgate.

PUBLICATIONS.—Horner, Berchtold, Lake, Cordley.

SOCIAL ENTERTAINMENTS.—Cordley, Crawford, Kent, Johnson.

TERM SCHEDULES.—Fulton, Horner, Johnson, Hayward.

THE STATION STAFF.

THOMAS MILTON GATCH, A. M., PH. D.
President.

JAMES WITHYCOMBE, M. AGR.
Director and Agriculturist.

ARTHUR BURTON CORDLEY, M. S.
Entomologist.

EDWARD RALPH LAKE, M. S.
Botanist and Horticulturist.

GEORGE COOTE
Florist and Gardener.

ABRAHAM LINCOLN KNISELY, M. S.
Chemist.

FRANK EDWARDS, B. M. E.
Assistant Chemist.

CLARENCE MELVILLE McKELLIPS, PH. C.
Assistant Chemist.

FRED LEROY KENT, B. S., AGR.
Assistant Agriculturist and Dairy Instructor.

EMILE FRANCIS PERNOT, M. S.
Bacteriologist.

THOMAS HENRY CRAWFORD, A. M.
Clerk and Purchasing Agent.

HELEN LUCILE HOLGATE, B. H. E.
Stenographer.

Oregon Agricultural College.

HISTORY.

By an act of Congress, approved by President Lincoln, July 2, 1862, a grant of land was made to each state in the Union in the amount of thirty thousand acres, or its equivalent, for each Senator and Representative to which the state was entitled by the apportionment of the census of 1860.

The proceeds under this act were to constitute a perpetual fund the principal of which was to remain forever undiminished; but interest arising from said fund, in each state which should avail itself of the benefits of the act, was to be applied inviolably to the support and maintenance of a "College where the leading objects shall be, without excluding other scientific and classical studies, and including military tactics, to teach such branches of learning as are related to agriculture and the mechanic arts, in such a manner as the legislatures of the states may respectively prescribe, in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions of life."

Ninety thousand acres of land were apportioned to Oregon, and by an Act approved October 9, 1862, the Legislative Assembly of Oregon accepted the provisions of the congressional law.

In 1868 the state legislature appointed three commissioners to locate the land; and a report of the selection made, was submitted in 1870.

There were in 1868 no state colleges in Oregon, and the same legislature that provided for the selection of the land gave the use of the funds that should arise from the sale of such land to the Corvallis College, in Benton county, an institution of learning under the control of the M. E. Church, South.

None of the land of the land grant having as yet been sold, the legislature made a small annual appropriation to support the school until the fund to·be derived from the grant should become adequate.

In 1885 the church voluntarily relinquished its claim on the funds of the Agricultural College, and the state assumed control vesting the full management of the college in a board of regents.

In the summer of 1887 the corner-stone of a brick structure, now known as the administration building, was laid by the Governor of Oregon amid imposing ceremonies. This building, erected by citizens of Benton county on the Agricultural College farm, was the nucleus around which eleven other buildings eventually clustered as necessity and growing interests demanded.

THE MORRILL ACT.

On August 30, 1890, "An Act" was passed by Congress "to apply a portion of the proceeds of the public lands to the more complete endowment and support of the colleges for the benefit of agriculture and the mechanic arts established under the provisions of an act of Congress approved July 2, 1862."

This act provided that in 1890, $15,000 should be paid to each of the land grant colleges and that the amount so

appropriated should be increased by the sum of $1,000 annually for ten years, and that thereafter the amount annually appropriated should continue to be $25,000.

It also is provided that this money shall be "applied only to instruction in agriculture, the mechanic arts, the English language and the various branches of mathematical, physical, natural and economic sciences with special reference to their application in the industries of life, and to the facilities for such instruction." And it further provided that "no portion of said moneys shall be applied, directly or indirectly, under any pretense whatever, to the purchase, erection, preservation, or repair of any building or buildings."

THE HATCH ACT.

In addition to the above, this college receives from the United States, under the "Hatch Bill" of 1887, the sum of $15,000 a year for conducting experiments in agriculture. With this sum it supports an agricultural experiment station in connection with the college. Although the "Hatch Fund" is used entirely for experiment work, it is exceedingly valuable to students in agriculture and horticulture.

LOCATION.

The State Agricultural College is located at Corvallis, Oregon, near the head of navigation on the Willamette river and is accessible by railway from the east, west, north and south. The city, as its name indicates, is in the heart of the Willamette valley. To the east is the Cascade range with its snow-capped peaks, while to the west, and near at hand. is the Coast range. Chintimini, the tallest in the range, is covered with snow for several months of the year, and, though fourteen miles away, adds beauty to the scene.

A COLLEGE TOWN WITHOUT A SALOON.

Corvallis is a city of two thousand inhabitants, many churches and *no saloons.* The city, which is situated on high ground, has never been visited by any dangerous epidemic disease. The State Board of Health and other authorities have made frequent mention of the healthfulness of Corvallis and vicinity; and have spoken of the location of the College as one of the chief causes of its rapid growth.

COLLEGE GROUNDS.

The College grounds cover an area of 220 acres. Of this acreage about three-fifths is devoted to croppage including the common farm and garden crops, native pasture, orchards, small fruits and vines. The remaining two-fifths is devoted to lawns, shrubberies, athletic sports and flower-gardens. The main campus is tastefully designed for landscape effects and the ultimate purpose is to use native trees and shrubs for the body of the plantings, with a view to exhibiting the value of our native plants for ornamental and economic purposes.

BUILDINGS.

"The Administration Building was erected by the citizens of Benton County, and with 39½ acres of ground was donated to the State of Oregon, as an inducement to the people of the State to locate permanently the State Agricultural College at Corvallis. It is a three story brick building containing fourteen rooms suitably arranged and well adapted for school purposes. It is of the estimated value of $25,000.00.

The Agricultural Hall, which is a three-story Oregon gray granite and sandstone building 85x125 feet, is situated about 150 yards southeast of the Administration Building. It is intended for an assembly hall for the Agricultural and Horticultural classes, laboratories and class rooms and for all purposes connected with agriculture and chemistry, dairying and the Experiment Station. It cost about $42,000.00.

Mechanical Hall is located about 150 yards northeast of the Administration Building. It is constructed of Oregon gray granite and sandstone. It is two stories high, 90x100 feet. It is a fine substantial building, well arranged and admirably adapted for the purpose for which it is used. It is valued at $23,000.00 and contains machinery worth $12,000.00.

The Armory is situated south of the Administration Building some 200 yards. This is a large two story wooden structure 70x120 feet. It is used for public gatherings, for armory purposes, gymnasiums, etc. It is valued at $10,000.

Cauthorn Hall is a three-story wooden structure intended for a home for young men attending the College and will accommodate 100 persons. It is valued at $15,000.00.

Alpha Hall is a two-story frame building, designed as a home for young ladies attending College and will accommodate 40 persons. It is valued at $4,000.00.

Horticultural Building stands north of the Administration Building about 200 yards, and is used as class rooms and has laboratories and green houses connected therewith. It is. including laboratories, valued at $2,500.00.

The Mining Laboratory, which is situated just south of the Administration Building, is a frame building of the value of $4,000.00.

West of the Administration Building and about 200 yards distant, is located the blacksmith shop, a one story brick structure, large and roomy, valued at $6,000.00.

North of the Administration Building is the heating and power plant. The building is of brick and the plant consists of two boilers each of 75-horse power, and one of 50 horse power, of superior make and quality, also a 40 horse power engine and suitable dynamos to furnish light and power. From this plant all the buildings on the ground are heated, by means of pipes conducting the heat underground to the various buildings. Electricity is generated by steam power and is conducted to all of the buildings belonging to the College. The building and machinery and heating apparatus are valued at $33,000.00.

The water supply is obtained from wells north and west of the Administration Building by means of pumps operated by steam engines stationed in the pump house. The machinery, building and water tower are of the value of $2,000.00.

FARM.

The farm has also good barns, a number of silos, the usual farm machinery and is of the value of $2,500.00.

STUDENT LIFE.

CAUTHORN HALL.

Cauthorn Hall, commonly known as the Young Men's Hall, was named in honor of Senator Thomas Cauthorn, a benefactor of the Oregon Agricultural College. It was erected in 1891, for the use of young men who desire to live economically while attending school and at the same time enjoy the privileges and influences of dormitory life. The building, which is conveniently located and amply supplied with hot and cold water, bath rooms, steam heat and electric lights, is sufficiently large to accommodate one hundred persons. The dining room, kitchen, and reading room are pleasant and well furnished. Students' rooms are uniformly ten feet wide, and respectively fourteen, seventeen and twenty feet long.

Each student's room is furnished with a table, chairs, a chest with drawers; and each student is supplied with mattress, springs and a bedstead three feet wide and six feet long. The student is expected to furnish four sheets, two pillowcases, blankets, quilt, pillow, window-blind 3 x 6½ feet, towels, broom, dustpan, washbowl, pitcher, slop-pail, mirror, comb, brushes, tumblers, carpet, pictures and other ornaments that will make his room comfortable and homelike. He should bring a dictionary and such other books as are used for study, for reference, and for profitable entertainment.

The hall is managed by Mr. and Mrs. R. L. Whitehead with Professor W. T. Shaw as resident master.

To obtain a room in Cauthorn Hall it is necessary for the applicant to furnish satisfactory evidence that he does not use tobacco nor profane language, and that his conduct is gentlemanly at all times.

The cost of living at Cauthorn Hall, including rent, heat, board, etc., is $3.00 per week payable monthly, in advance. No reduction will be made during the term, save for prolonged absence caused by sickness, when one-half will be deducted.

The hall is furnished with a reading room which is supplied by the club with choice current literature.

Relatives and visiting friends will be charged 15 cents per meal and 20 cents for lodging.

Cauthorn Hall will be closed during the winter holidays.

For further information send for special circular.

ALPHA HALL.

It is the purpose of those having charge of the hall, to make it a comfortable and happy home for the young ladies, surrounding them with such influences as will, during their college course, largely contribute to their welfare and progress.

Each room is furnished with mirror, chest with drawers, bedstead, spring mattress, pillow, two chairs and table. Each student should bring with her, table napkins, towels, bedroom crockery and bedding.

The board will be $3.00 per week, payable monthly in advance.

Friends visiting students will be charged 15 cents per meal.

Those not willing to observe strictly the two rules of the house—quiet observance of study hours and promptness at all meals—will please not apply for rooms.

SOCIAL LIFE OF THE STUDENTS.

Literary contests are common events, the societies meeting in joint session, with prominent citizens as judges. The Y. M. C. A. and Y. W. C. A. hold their regular sessions at the college every Sunday afternoon throughout the school year. These gatherings aid materially in developing the social and spiritual life of the members. At the beginning of the school year these associations conduct an employment bureau also a bureau of information at their headquarters, and furnish Y. M. C. A. hand-books gratis to all students. Each year a popular course of lectures free to all students is given, under the direction of the faculty, by distinguished speakers from various parts of the state. Vocal and instrumental music intersperse various features of the college work, so that a student in a career of four years may not leave the institution without the refining influences of this important art. Physical culture is encouraged in every way at the gymnasium and on the training grounds. Bowling, fencing, Indian-club swinging, dumb-bell exercises, foot ball, basket ball, base ball, golf and lawn tennis occupy the spare moments of the students in a happy commingling of all classes. These social affairs, although under the direction of a committee of the faculty, are managed by the students who thereby acquire a training in social life destined to be of great value to them.

Corvallis is pre-eminently a college town noted for social clubs, literary societies, and active churches which vie with each other in friendly interest and hospitality toward our young people. More and more as the institution progresses patrons of the college move hither that they may be with their children and at the same time enjoy the refining influences and cultured society of a college community.

SOCIETIES.

The students maintain several literary societies, four for young ladies and four for young gentlemen. These societies are of a semi-fraternal nature, offering to their members social as well as literary advantages. The exercises consist principally of essays, declamations, debates and music.

Public and joint meetings are held by permission of the faculty. Many other features of college life, social and literary, are under their supervision.

The following is a list of the different societies now in existence:

For young ladies: Sorosis, Pierian, Feronian, Utopian.

For young men: Amicitia, Jeffersonian, Philadelphian, Zetagathian.

The membership of each of these societies is limited to forty.

In March, 1896, the literary societies of the college began the publication of a monthly periodical, the "College Barometer." The enterprise met with marked success, and the paper, controlled entirely by students, now wields a strong influence in all college affairs. During the coming year every effort will be made to improve it and make it of interest not only to those directly connected with the school, but to all who are in touch with literary, scientific and industrial education. The editors will be pleased to receive news of alumni and other persons formerly connected with the college. Brief, pointed notes, accounts of scientific experiments and discoveries, and short, well-written and instructive literary articles are also solicited.

ATHLETICS.

The Oregon Agricultural College is a member of the Northwest Intercollegiate Athletic Association. This association is composed of the leading colleges and universities of the Northwest, organized for the better control of college athletics.

The students also maintain an athletic association known as the Athletic Union of the Agricultural College of Oregon.

This organization supports foot-ball, base-ball, basket-ball and track teams and has general charge of all athletics under the supervision of the athletic committee of the faculty.

The College now owns a fine athletic field properly fenced, a neat and commodious grandstand, an excellent quarter-mile tract. The enclosed area is thoroughly drained, graded and seeded, making this one of the best athletic fields in the Pacific Northwest.

The training and the physical condition of all athletes are supervised by the Director of Athletics, W. O. Trine, who has long been recognized as one of the most efficient trainers on the coast.

GOVERNMENT.

The college does not undertake to prescribe in detail either its requirements or prohibitions. Students are met on a plane of mutual regard and helpfulness. Our appeal is to a proper sense of the proprieties of life and the necessity of organization on such a basis.

Established by a government that recognizes no distinction of religious belief, the Oregon Agricultural College seeks neither to promote any creed nor to exclude any; but it will always do everything in its power to promote the religious spirit and life.

Whenever the college life of any student is such that his influence, directly or indirectly, is injurious to the work of the institution, he will be relieved from further attendance at this college.

All absences will be charged from the first recitation of the term.

COURSE OF LECTURES.

In addition to the regular lectures given in the various departments by members of the faculty, a course of lectures by representative men, is delivered at convenient intervals during the year. These lectures bring young people in contact with leaders in the various departments of human endeavor; arouse investigation on current topics; stimulate students to emulate the achievements of specialists; give breadth of scholarship to the student and aid in developing the character of the institution. They rank among the most attractive features of college life and are free to all students.

CONDITIONS OF ADMISSION.

All applicants for matriculation in any department except music must be at least fifteen years of age.

To enter the freshman year the applicant must be able to pass a satisfactory examination in reading, spelling, geography (physical and descriptive), arithmetic (written and mental), United States history, English grammar, and algebra to quadratics.

ADMISSION FROM OTHER COLLEGES.

Students from other colleges must show a certificate of good standing, or honorable dismissal. Such applicants will receive credit for studies pursued in any college authorized to confer degrees, so far as the two courses are equivalent, upon presenting a certificate of standing from the proper officers.

ADMISSION FROM ACCREDITED SCHOOLS.

Graduates from the following accredited high schools and academies will be admitted to the freshman year without examination, provided they have completed algebra to quadratics:

Albany,
Astoria,
Ashland.
Baker City,
Bandon (Major Course),
Bishop Scott Academy,
Burns,
Carlton,
Coquille Collegiate Institute,
Corvallis,
Cottage Grove,
Cove,
Elgin,
Eugene,
Forest Grove,
Fossil,
Garland Academy,
Grant's Pass,
Gresham,
Heppner,
Hillsboro High School,
Hill's Military Academy,
Hood River,
Independence,
Jacksonville,
Klamath Falls,
Lafayette High School,
La Grande,
Lakeview,
Lebanon,
Marshfield,
McMinnville,
Medford,
Milton,
Moro,
North Yamhill,
Oregon City,
Ontario,
Parkplace,
Pendleton,
Portland,
Prineville,
Roseburg,
Salem,
Santiam Academy,
Silverton,
Summerville,
The Dalles,
The Allen Preparatory School, Portland,
Tillamook,
Union,
Vale,
Wasco,
Woodburn.

Those completing the two-year high school course prescribed by the Oregon State Board of Education will be permitted to register as Freshmen without examination. Those completing the four-year high school course may, upon presenting their diplomas, register as Sophomorse. The heads of our various departments will give credit for equivalent work done in class or laboratory.

ADMISSION UPON CERTIFICATES AND STATEMENTS.

The holder of a certificate or statement signed by the county school board of examiners certifying that at a regular teachers' examination he received a satisfactory grade to entitle him to a teacher's certificate, may be admitted to all the freshman classes except algebra. He may remove such deficiency in algebra upon furnishing the President with a satisfactory statement from a teacher or school superintendent that the applicant is familiar with the subject of algebra to quadratics; or, upon arrival at the college, he may make good such deficiency by examination or by class recitation.

ADMISSION TO THE SUB-FRESHMAN CLASS.

The course of instruction offered under this head is intended for young people who live at considerable distance from an academy or high school, and are unable to attend such, but have finished the eighth grade in a good public school. No tuition is charged. The work is distributed in the three terms as follows:

SUB-FRESHMAN YEAR.

FIRST TERM.

English Grammar 5	English A
English Composition 5	English B
Arithmetic 5	Mathematics A
Physical Geography 5	Geography A
Reading 1, 2.	Elocution A
Military Drill 2½, 5 (young men)	Military A
Physical Culture 1½, 3 (young ladies)	Physical Culture A

SECOND TERM.

English Grammar 5	English C
English Composition 5	English D
Elementary Algebra 5	Mathematics B
U. S. History 5	History A
Elocution 1, 2	Elocution B
Military Drill 2½, 5	Military B
Physical Culture 1½, 3	Physical Culture B

THIRD TERM.

Civil Government	Civics A
English Grammar 5	English E
English Composition 5	English F
Algebra 5	Mathematics C
U. S. History 5	History B
Elocution 1, 2	Elocution C
Military Drill 2½, 5	Military C
Physical Culture 1½, 3	Physical Culture C

According to a regulation of the board of regents students shall not be admitted to this class who come from towns or cities of more than fifteen hundred inhabitants, or from such communities as are supporting good high schools.

ADMISSION OF SPECIAL STUDENTS.

None can be admitted as irregular or special students unless they belong to one of the following classes:

1. Those who desire to devote special attention to music and take at least two lessons a week in our department of music.
2. Those who on account of poor health certified by physicians cannot take a complement of studies.
3. Residents who are heads of families and have household duties to look after.
4. Residents who are engaged in regular business or profession and have time for only one or two studies.
5. Such persons as may be permitted to take special studies by vote of the Faculty at a regular monthly meeting.

SCOPE OF THE INSTITUTION.

The scope of the institution, as now organized, cannot be better stated than in the comprehensive words of the act of Congress defining the duty of this and similar colleges:

> "The leading object shall be, without excluding other scientific and classical studies, and including military tactics, to teach such branches of learning as are related to agriculture and the mechanic arts, in such manner as the legislature of the state may prescribe, *in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions of life.*"

Based upon a broad foundation, the special work of the Oregon Agricultural College is the training of youth in those branches of learning which lie at the foundation of modern industrial pursuits. In accordance with the purposes of its founders, and the terms of its original charter, it aims to give special and prominent attention to agriculture, both theoretical and experimental; but it also provides "a liberal and practical education" in the leading branches of mathematical, natural and physical sciences, in order to prepare youth "for the several pursuits and professions of life." It has increased its subjects and courses of study, and its teaching and illustrative equipment, to such an extent that now, "without excluding classical studies," its leading object is to teach the various sciences in such a manner as to show their applications in the more important industries, and to combine with every branch of instruction such an amount of actual practice in the shop, the field, and the laboratory as will serve to illustrate and apply the theory, without subordinating it. The course in agriculture, as now arranged, conforms very closely to the recommendations of the *Association of American Agricultural Colleges and Experiment Stations.* The range of work in the various courses is shown, as far as space will allow, in the following descriptive statements and schedule. It is confidently believed that few institutions in the country furnish opportunities for obtaining advanced scientific education to an equal extent and thoroughness at so moderate a cost and with so many incidental advantages.

DEGREES AND COURSES OF STUDY.

UNDERGRADUATE WORK.

The college offers seven courses of instruction of four years each leading to the degree of Bachelor of Science, viz:—

Agriculture,
Household Science,
Mechanical Engineering,
Electrical Engineering,
Mining Engineering,
Pharmacy,
Literary Commerce.

All of these require training in English, mathematics, history, elocution, drawing and such other branches as are requisite to a practical education.

In order that the college may meet the needs of a greater number of people and the students intensify along special lines, much of the work is made elective, as may be seen by reference to the courses of study published elsewhere in this catalogue.

In addition to the above courses provision has been made for courses in Vocal and Instrumental Music, a two-year course in Mining, a two-year course in Pharmacy, and short course in Agriculture and Dairying.

GRADUATE WORK.

That students may be encouraged to continue their college work after graduation, the board of regents has made provision for courses leading to advanced degrees.

ADVANCED DEGREES.

Advanced degrees will be given to graduates of this college, or similar approved colleges, upon the following conditions:—

An applicant for a higher degree must present himself for examination in one major and at least one minor study. Major and minor courses leading to the degree of Master of Science, to be selected from different departments, approved by the faculty, are provided for in the departments of Agriculture, Botany, Chemistry, Economics, Horticulture, Zoology, Mechanical and Electrical Engineering and Household Science. The minor, at the option of the student, may also be taken from the departments of Mathematics, English History or Modern Languages. The candidate must prepare a thesis, based upon original research, which shall show scholarly acquirements of a high order. This thesis must be printed or typewritten and bound, and two copies of it left in the college library. The candidate must spend at least one academic year, or its equivalent, as a resident student at this college in preparing for this degree.

COURSE IN AGRICULTURE.

FRESHMAN YEAR.

FIRST TERM.

Algebra 5	Mathematics I.
English Composition 5	English I
General History 5	History I.
* Freehand Drawing 1½, 3 Elocution 1, 2	Drawing I. Elocution I.
*Woodwork 2½, 5	Shopwork I.
Military Drill 2½, 5	Military I.

SECOND TERM.

Geometry 5	Mathematics IV.
English Composition 5	English II.
* General History 5	History II.
Elocution 1, 2	Elocution II.
Freehand Drawing 1½, 3	Drawing II.
Woodwork 2½, 5	Shopwork II.
Military Drill 2½, 5	Military II.
Physical Culture 1, 2	Physical Culture I.

THIRD TERM.

Geometry 5	Mathematics V.
Composition and Rhetoric 5	English III.
Plant Morphology 5, 7	Botany I.
Breeds of Stock 5	Agriculture I.
*Freehand Drawing 2½, 5	Drawing III.
Military Drill 2½, 5	Military III.

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* Latin or German may be elected instead, but no credit will be given towards graduation for less than the full course of six terms.

SOPHOMORE YEAR.

FIRST TERM.

Chemistry 5, 7	Chemistry I.
Trigonometry 5	Mathematics VI.
Rhetoric 5	English IV.
* Plant Histology 5, 7	Botany II.
Blacksmithing 1½, 3	Shopwork IV.
Military Drill 2½, 5	Military IV.

SECOND TERM.

Physics 3	Physics I.
Physical Laboratory 2, 4	Physics III
Chemistry 5, 7	Chemistry II.
Rhetoric 4	English V.
Soils and Manures 2½	Agriculture III.
Dairying 2½	Agriculture II.
*Blacksmithing 2½, 5	Shopwork V.
Military Drill 2½, 5	Military V.
Physical Culture 1, 2	Physical Culture II.

THIRD TERM.

*Physics 3	Physics II
Physical Laboratory 2, 4	Physics IV.
Chemistry 2, 4	Chemistry III.
Chemistry 3	Chemistry XI.
English Literature 5	English VI.
Zoology 5, 7	Zoology I.
Irrigation and Drainage 5	Agriculture IV.
Military Drill 2½, 5	Military VI.

JUNIOR YEAR.

FIRST TERM.

English Literature 5	English VII
*Entomology 5, 7	Zoology II.
Agricultural Chemistry 5	Chemistry IV.
Dairying 5	Agriculture V.
Military Drill 2½, 5	Military VIII.
Military Science 1	Military Science I.

SECOND TERM.

Plant Physiology 5, 7	Botany III.
*Literature 5	English VIII.
Vertebrate Anatomy 5, 7	Zoology III.
Agricultural Chemistry 5	Chemistry XXI.
Military Drill 2½, 5	Military IX.
Military Science 1	Military Science II.

THIRD TERM.

American Literature 5	English IX.
*Surveying 5, 9	Mathematics X.
†Chemistry 5, 7	Chemistry V.
Civics 5	Political Science II.
Physiology 5, 7	Zoology IV.
Steam Engine 1, 2	Mechanics IV.
Military Drill 2½, 5	Military XI.
Military Science 1	Military Science III

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† Required of students who elect thesis work in the department of chemistry.

SENIOR YEAR.

FIRST TERM.

Economics 5	Political Science I.
Geology 5	Geology I.
Horticulture 2½, Hort. I, or Agrostology 2½	Bot. XII.
Military Drill 2½, 5	Military XII.
Military Science 1	Military Science IV.

†*Electives.*

German 5, or,	German X.
Latin 5	Latin X.
Chemistry 5, 7	Chemistry VI.
Mineralogy 3, 6	Mineralogy I.
Forestry	Botany VIII.
Kitchen Gardening	Gardening I.
Botany 5, 7	Botany IV.
Zoology 5, 7	Zoology VI.
Bacteriology 5, 7	Bacteriology I.

SECOND TERM.

Psychology 5	Mental Science I.
Horticulture 2½	Horticulture II.
Military Drill 2½, 5	Military XIV.
Military Science 1	Military Science V.

†*Electives.*

German 5, or,	German XI.
Latin 5	Latin XI.
Botany 5, 7	Botany V.
Forestry 5	Botany IX.
Kitchen Gardening 5	Gardening II.
Chemistry 5, 7	Chemistry VII.
Zoology 5, 7	Zoology VII.
Bacteriology 5, 7	Bacteriology II.

Assaying 3, 6	Chemistry IX.
Elocution 1, 2	Elocution V.

THIRD TERM.

Soil Physics 5, 7	Agriculture VII.
Veterinary Science 5	Agriculture IX.
Horticulture 5	Horticulture III.
Stock Feeding and Breeding 4	Agriculture VI.
Military Drill 2½, 5	Military XVI.
Military Science 1	Military Science VI.

[†]*Electives.*

American Literature 5	English IX.
German 5, or,	German VI.
Latin 5	Latin VI.
Astronomy 5	Mathematics XI.
Forestry 5	Botany X.
Kitchen Gardening 5	Gardening III.
Agricultural Engineering 5	Mathematics XII.
Botany 5, 7	Botany VI or VII.
Zoology 5, 7	Zoology VIII.
Chemistry 5, 7	Chemistry VIII.
Bacteriology 5, 7	Bacteriology III.
Assaying 3, 6	Chemistry X.

[†] In addition to the required studies seniors must select from the electives a sufficient number of hours to form a full course of 22 hours, counting thesis five hours for last two terms.

A student may upon obtaining written consent of the heads of departments interested, substitute higher mathematics for any other branch of study.

COURSE IN HOUSEHOLD SCIENCE.

FRESHMAN YEAR.

FIRST TERM.

Algebra 5	Mathematics I.
English Composition 5	English I.
General History 5	History I.
* Freehand Drawing 1½, 3	Drawing I.
Elocution 1, 2	Elocution I.
General Hygiene ½, 1	Household Science I.
Sewing 2, 4	Household Science II.
Physical Culture 1½, 3	Physical Culture I.

SECOND TERM.

Geometry 5	Mathematics IV.
English Composition 5	English II.
*General History 5	History II.
Elocution 1, 2	Elocution II.
Freehand Drawing 1½, 3	Drawing II.
Etiquette ½, 1	Household Science III
Sewing 2, 4	Household Science IV.
Physical Culture 1½, 3.	Physical Culture II.

THIRD TERM.

Geometry 5	Mathematics V.
Composition and Rhetoric 5	English III.
Plant Morphology 5, 7.	Botany I.
*Freehand Drawing 2½, 5	Drawing III.
Sewing 2½, 5	Household Science V.
Physical Culture 1½, 3.	Physical Culture III.

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*Latin or German may be elected instead, but no credit will be given towards graduation for less than the full course of six terms.

SOPHOMORE YEAR.

FIRST TERM.

Chemistry 5, 7	Chemistry I.
Plant Histology 5, 7	Botany II.
Rhetoric 5	English IV.
Dressmaking 2½, 5	Household Science VI.
Elocution 1, 2	Elocution III.
*Physical Culture 1½, 3	Physical Culture IV.
Care of the Sick 2	Household Science XIII.

SECOND TERM.

*Floriculture 5	Floriculture I.
History of Eastern Peoples 5	History III.
Chemistry 5, 7	Chemistry II.
Rhetoric 4	English V.
Dressmaking 2½, 5	Household Science VII.
Physical Culture 1½, 3	Physical Culture V.

THIRD TERM.

English Literature 5	English VI.
Zoology 5, 7	Zoology I.
Chemistry 2, 4	Chemistry III
Chemistry 3	Chemistry XI.
Modern History 5	History IV.
* Dressmaking 2½, 5	Household Science VIII.

JUNIOR YEAR.

FIRST TERM.

Literature 5	English VII.
Entomology 5, 7	Zoology II.
Floriculture 5	Floriculture II.
German 5, or,	German I.
Latin 5	Latin I.
Cookery 1½, 3	Household Science IX.

SECOND TERM.

Plant Physiology 5, 7	Botany III.
Literature 5	English VIII.
German 5, or,	German II.
Latin 5	Latin II.
Vertebrate Anatomy 5, 7	Zoology III.
Cookery 1½, 3	Household Science X.
Physical Culture 1½, 3	Physical Culture VI.

THIRD TERM.

Dairying 5, or,	Agriculture V.
American Literature 5	English IX.
German 5, or,	German III.
Latin 5	Latin III.
Physiology 5, 7	Zoology IV.
Civics 5	Political Science II.
Cookery 3	Household Science XI

Students desiring to elect thesis work in the department of chemistry must take Course V in chemistry during the third term of the Junior year.

SENIOR YEAR.

FIRST TERM.

Economics 5	Political Science I.
Aesthetics 5	Household Science XII.
German 5, or,	German IV.
Latin 5	Latin IV.

†*Electives.*

Literature 5	English X.
Botany 5, 7	Botany IV.
Zoology 5, 7	Zoology V.
Bacteriology 5, 7	Bacteriology I.
Elocution 1, 2	Elocution IV.
Drawing 2½, 5	Drawing IV.
Chemistry of Foods 5, 7	Chemistry XII.
Geology 5	Geology I.

SECOND TERM.

Psychology 5	Mental Science I.
German 5, or,	German V.
Latin 5	Latin V.
Aesthetics 5	Household Science XIII.

†*Electives.*

Physics 3, 7	Physics I.
Physical Laboratory 2, 4	Physics IV.
Chemistry of Foods 5, 7	Chemistry XIII.
Zoology 5, 7	Zoology VI.
Botany 5, 7	Botany V.
Elocution 1, 2	Elocution V.
Drawing 2½ 5	Drawing V.
Bacteriology 5, 7	Bacteriology II.
Literature 5	English XI.

THIRD TERM.

Domestic Lectures 5	Household Science XIV.
German 5, or,	German VI.
Latin 5	Latin VI.

† *Electives.*

Literature 5	English XII.
Physics 3	Physics II.
Physical Laboratory 2, 4	Physics IV.
Chemistry of Foods 5, 7	Chemistry XIV.
Zoology 5, 7	Zoology VII.
Botany 5, 7	Botany VI.
Elocution 1, 2	Elocution VI.
Drawing 2½, 5	Drawing VI.
Astronomy 5	Mathematics XI.
Bacteriology 5, 7	Bacteriology III.
Landscape Gardening 5	Floriculture IV.

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† In addition to the regular studies seniors must select from the electives enough hours to form a full course of 22 hours, counting thesis 5 hours for last two terms.

A student may upon obtaining written consent of the heads of departments interested, substitute higher mathematics for any other branch of study.

COURSE IN MECHANICAL ENGINEERING

FRESHMAN YEAR.

FIRST TERM.

Algebra 5	Mathematics I.
English Composition 5	English I.
General History 5	History I.
Freehand Drawing 1½, 3	Drawing I.
* Elocution 1, 2	Elocution I.
Woodwork 2½, 5	Shopwork I.
Military Drill 2½, 5	Military I.

SECOND TERM.

Geometry 5	Mathematics IV.
English Composition 5	English II.
*General History 5	History II.
Elocution 1, 2	Elocution II.
Freehand Drawing 1½, 3	Drawing II.
Woodwork 2½, 5	Shopwork II.
Military Drill 2½, 5	Military II.
Physical Culture 1, 2	Physical Culture I.

THIRD TERM.

Geometry 5	Mathematics V.
Composition and Rhetoric 5	English III.
Modern History 5	History IV.
*Freehand Drawing 2½, 5	Drawing III.
Woodwork 2½, 5	Shopwork III.
Military Drill 2½, 5	Military III.

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* Latin or German may be elected instead, but no credit will be given towards graduation for less than the full course of six terms.

SOPHOMORE YEAR.

FIRST TERM.

Trigonometry 5	Mathematics VI.
Rhetoric 5	English IV.
Mechanical Drawing 5, 10	Mechanical Engineering I.
*Blacksmithing 2½, 5	Shopwork IV.
Military Drill 2½, 5	Military IV.

SECOND TERM.

Algebra 5	Mathematics II.
Physics 3	Physics I.
Physical Laboratory 2, 4	Physics III.
Rhetoric 4	English V.
*Mechanical Drawing 2½, 5	Mechanical Engineering II.
Blacksmithing 2½, 5	Shopwork V.
Military Drill 2½, 5	Military V.
Physical Culture 1, 2	Physical Culture II.

THIRD TERM.

Algebra 5	Mathematics III.
Physics 3	Physics II.
Physical Laboratory	Physics IV.
English Literature 5	English VI.
Mechanical Drawing 1½, 3	Mechanical Engineering III.
Blacksmithing 2½, 5	Shopwork VI.
*Military Drill 2½, 5	Military VI.

§JUNIOR YEAR—MECHANICAL.

FIRST TERM.

Chemistry 5, 7	Chemistry I.
*Literature 5	English VII.
Analytical Geometry 5	Mathematics VII.
Descriptive Geometry 5	Mechanical Engineering V.
Machine Shop 2½, 5	Shopwork VII.
Military Drill 2½, 5	Military VII.
Military Science 1	Military Science I.

SECOND TERM.

Chemistry 5, 7	Chemistry II.
Materials of Engineering	Mechanical Engineering XX.
*Descriptive Geometry 1½, 3	Mechanical Engineering VI.
Calculus 5	Mathematics VIII.
Machine Shop 2½, 5	Shopwork VIII.
Military Drill 2½, 5	Military IX.
Military Science 1	Military Science II.

THIRD TERM.

Mechanism 5, 7	Mechanical Engineering IV.
Calculus 5	Mathematics IX.
Steam Engines and Boilers 4,	Mechanical Engineering VII.
Civics 5	Political Science II.
*Machine Shop 2, 4	Shopwork IX.
Military Drill 2½, 5	Military XI.
Military Science 1	Military Science III.

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§Students wishing to specialize in electrical engineering may elect to do so at the beginning of the junior year.

SENIOR YEAR—MECHANICAL.

FIRST TERM.

Economics 5	Political Science I.
Mechanics of Engineering 5,	Mechanical Engineering VIII.
Thermodynamics 3	Mechanical Engineering IX.
Physics 5, 7	Physics V.
Military Drill 2½, 5	Military XII.
Military Science 1	Military Science IV.

†*Electives.*

Literature 5	English X.
German 5, or,	German IV.
Latin 5	Latin IV.
Woodwork 2½, 5	Shopwork X.
Ironwork 2½, 5	Shopwork XI.
Mechanical Drawing 2½, 5	Mechanical Engineering X.
Mineralogy 3, 6	Mineralogy I.

SECOND TERM.

Psychology 5	Mental Science I.
Machine Design 5, 7	Mechanical Engineering XI.
Mechanics of Engineering 5,	Mechanical Engineering XII.
Military Drill 2½, 5	Military XIV.
Military Science 1	Military Science V.

†*Electives.*

Literature 5	English XI.
German 5, or,	German V.
Latin 5	Latin V.
Structure of Woods and Metals 5, 7	Botany XI.
Woodwork 2½, 5.	Shopwork XII.
Ironwork 2½, 5	Shopwork XIII.
Mechanical Drawing 2½, 5	Mechanical Engineering XIII.
Assaying 3, 6	Chemistry IX.
Elocution 1, 2	Elocution V.

THIRD TERM.

Mechanics of Engineering 5	Mechanical Engineering XIV.
Machine Design 5, 7	Mechanical Engineering XV.
*Military Drill 2½, 5	Military XVI.
Military Science 1	Military Science VI.

†*Electives.*

German 5, or,	German VI.
Latin 5	Latin VI.
Astronomy 5.	Mathematics XI.
American Literature 5	English IX.
Surveying 5, 9	Mathematics X.
Woodwork 2½, 5	Shopwork XIV.
Ironwork 2½, 5	Shopwork XV.
Mechanical Drawing 2½, 5	Mechanical Engineering XVI.
Assaying 3, 6	Chemistry X.

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† In addition to the regular studies seniors must select from the electives enough hours to form a full course of 22 hours, counting thesis 5 hours for last two terms.

JUNIOR YEAR—ELECTRICAL.

FIRST TERM.

Electricity and Magnetism 6, 9	Electrical Engineering I.
Descriptive Geometry 5	Mechanical Engineering V.
Analytical Geometry 5	Mathematics VII.
Chemistry 5, 7	Chemistry I.
*Machine Shop 2½, 5	Shopwork VII.
Military Drill 2½, 5	Military VII.
Military Science 1	Military Science I.

SECOND TERM.

Electricity and Magnetism 5, 7	Electrical Engineering II.
Chemistry 5, 7	Chemistry II.
*Descriptive Geometry 1½, 3	Mechanical Engineering VI.
Calculus 5	Mathematics VIII.
Machine Shop 2½, 5	Shopwork VIII.
Military Drill 2½, 5	Military IX.
Military Science 1	Military Science II.

THIRD TERM.

Calculus 5	Mathematics IX.
Electricity and Magnetism 3	Electrical Engineering III.
Steam Engines and Boilers 4	Mechanical Engineering VII.
*Civics 5	Political Science II.
Mechanism 5, 7	Mechanical Engineering IV.
Machine Shop 2, 4	Shopwork IX.
Military Drill 2½, 5	Military XI.
Military Science 1	Military Science III.

SENIOR YEAR—ELECTRICAL.

FIRST TERM.

Economics 5	Political Science I.
Mechanics of Engineering 5	Mechanical Engineering VIII.
Alternating Currents and Dynamo Design 5, 7	Electrical Engineering IV.
Literature 5	English VII.
Physics 3½, 7	Physics V.
Military Drill 2½, 5	Military XII.
Military Science 1	Military Science IV.

† Electives.

Literature 5	English X.
German 5, or,	German IV.
Latin 5	Latin X.
Woodwork 2½, 5	Shopwork X.
Ironwork 2½, 5	Shopwork XI.
Mechanical Drawing 2½, 5	Mechanical Engineering X.
Mineralogy 3, 6	Mineralogy I.

SECOND TERM.

Psychology 5	Mental Science I.
Machine Design 5, 7	Mechanical Engineering XI.
Mechanics of Engineering 5	Mechanical Engineering XII.
Alternating Currents and Dynamo Design 5, 7	Electrical Engineering V.
Military Drill 2½, 5	Military XIV.
Military Science 1	Military Science V.

† Electives.

German 5, or,	German XI.
Latin 5.	Latin XI.
Woodwork 2½, 5.	Shopwork XII.
Ironwork 2½, 5.	Shopwork XIII.
Mechanical Drawing 2½, 5	Mechanical Engineering XIII.

†Assaying 3, 6	Chemistry IX.
Elocution 1, 2	Elocution V.
Literature 5	English XI.

THIRD TERM.

Mechanics of Engineering 5	Mechanical Engineering XIV.
Machine Design 5, 7	Mechanical Engineering XV.
Alternating Currents and Dynamo Design 5, 7	Electrical Engineering VI.
‡Military Drill 2½, 5	Military XVI.
Military Science 1	Military Science VI.

†*Electives.*

German 5, or,	German XII.
Latin 5	Latin XII.
Astronomy 5	Mathematics XI.
American Literature, 5	English IX.
Surveying 5, 9	Mathematics X.
Woodwork 2½, 5	Shopwork XIV.
Ironwork 2½, 5	Shopwork XV.
Mechanical Drawing 2½, 5	Mechanical Engineering XIV.
Assaying 3, 6	Chemistry X.

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† Students electing Assaying must have previously taken Mineralogy I.

‡ Seniors who accept commissions as cadet officers are required to drill during the third term.

In addition to the regular studies seniors must select from the electives enough hours to form a full course of 22 hours, counting thesis five hours for last two terms.

COURSE IN PHARMACY.

FRESHMAN YEAR.

FIRST TERM.

‡Algebra 5	Mathematics I.
‡English Composition 5	English I.
General History 5	History I.
‡Latin 5	Latin I.
Freehand Drawing 1½, 3	Drawing I.
Elocution 1, 2	Elocution I.
‡ †Military Drill 2½, 5	Military I.

SECOND TERM.

Geometry 5	Mathematics IV.
‡English Composition 5	English II.
‡Latin 5	Latin II.
General History 5	History II.
Freehand Drawing 1½, 3	Drawing II.
Elocution 1, 2	Elocution II.
‡Military Drill 2½, 5	Military II.
‡Physical Culture 1, 2	Physical Culture I.

THIRD TERM.

Geometry 5	Mathematics V.
‡Composition and Rhetoric 5	English III.
‡Latin 5	Latin III.
Plant Morphology 5, 7	Botany I.
‡Military Drill 2½, 5	Military III.

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† Throughout the course young ladies take Physical Culture instead.

‡ Students desiring to take a short course in Pharmacy will be given a certificate in Pharmacy after completing the studies marked (‡).

SOPHOMORE YEAR.

FIRST TERM.

‡Chemistry 5, 7	Chemistry I.
Rhetoric 5	English IV.
German 5	German I.
Plant Histology 5, 7	Botany II.
‡Military Drill 2½, 5	Military IV.

SECOND TERM.

Physics 3	Physics I.
Physical Laboratory 2, 4	Physics III.
Rhetoric 4	English V.
German 5	German II.
‡Chemistry 5, 7	Chemistry II.
‡Military Drill 2½, 5	Military V.
Physical Culture 1, 2	Physical Culture I.

THIRD TERM.

German 5	German III.
Zoology 5, 7	Zoology I.
‡Chemistry 5, 10	Chemistry XV.
Physics 3	Physics II.
Physical Laboratory 2, 4	Physics IV.
‡Military Drill 2½, 5	Military VI.

JUNIOR YEAR.

FIRST TERM.

Literature 5	English VII.
‡Pharmaceutical Chemistry 5	Chemistry XVI.
‡Therapeutics and Doses 2	Pharmacy V.
‡Pharmacy 2	Pharmacy II.
‡Nomenclature 1	Pharmacy VI.
German 5	German IV.
Military Drill 2½, 5	Military VII.
Military Science 1	Military Science I.

SECOND TERM.

‡Pharmaceutical Chemistry 5	Chemistry XVII.
‡Pharmacognosy 2	Pharmacy III.
Vertebrate Anatomy 5, 7	Zoology III.
‡Pharmacy 3, 5	Pharmacy IV.
Literature 5	English VIII.
German 5	German V.
Military Drill 2½, 5	Military IX.
Military Science 1	Military Science II.

THIRD TERM.

‡Quantitative Chemistry 5, 10	Chemistry V.
Physiology 5, 7	Zoology IV.
Plant Classification 5, 7	Botany VII.
‡Pharmacognosy 2	Pharmacy I.
‡Pharmacy 3, 5	Pharmacy VII.
German 5	German VI.
Military Drill 2½ 5	Military XI.
Military Science 1	Military Science III.

SENIOR YEAR.

FIRST TERM.

‡Materia Medica and Therapeutics 3	Pharmacy VIII.
‡Operative Pharmacy 4, 6	Pharmacy IX.
‡Pharmaceutical Analysis 5, 10	Chemistry XVIII.
Bacteriology 5, 7	Bacteriology I.
Military Drill 2½, 5	Military XII.
Military Science 1	Military Science IV.

SECOND TERM.

‡Materia Medica and Therapeutics 3	Pharmacy XIV.
‡Prescription Practice 4½, 7	Pharmacy X.
‡Pharmaceutical Analysis 5, 10	Chemistry XIX.
Bacteriology 5, 7	Bacteriology II.
Military Drill 2½, 5	Military XIV.
Military Science 1	Military Science V.

THIRD TERM.

‡Pharmacognosy and Synonyms 3	Pharmacy XI.
‡Prescription Practice 5½, 8	Pharmacy XV.
‡Toxicology 1	Pharmacy XIII.
‡Pharmaceutical Analysis 5, 10	Chemistry XX.
Bacteriology 5, 7	Bacteriology III.
Military Drill 2½, 5	Military XVI.
Military Science 1	Military Science VI.

A student may upon obtaining written consent of the heads of departments interested, substitute higher mathematics for any other branch of study.

*COURSE IN MINING.

FRESHMAN YEAR.

FIRST TERM.

†Algebra 5	Mathematics I.
†English Composition 5	English I.
†General History 5	History I.
Freehand Drawing 1½, 3	Drawing I.
Elocution 1, 2	Elocution I.
†Woodwork 2½, 5	Shopwork I.
†Military Drill 2½, 5	Military I.

SECOND TERM

Geometry 5	Mathematics IV.
†English Composition 5	English II
†General History 5	History II.
Freehand Drawing 1½, 3	Drawing II.
Elocution 1, 2	Elocution II.
†Woodwork 2½, 5	Shopwork II.
†Military Drill 2½, 5	Military II.
†Physical Culture 1, 2	Physical Culture I.

THIRD TERM.

Geometry 5	Mathematics V.
†Composition and Rhetoric 5	English III.
Modern History 5	History III.
Freehand Drawing 2½, 5	Drawing III.
†Physical Geography 5	Physical Geography I.
†Military Drill 2½, 5	Military III.

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* Students desiring to take a short course in mining will be given a certificate in mining after completing the studies marked [†].

SOPHOMORE YEAR.

FIRST TERM.

Chemistry 5, 7	Chemistry I.
Trigonometry 5	Mathematics VI.
†Rhetoric 5	English IV.
†Mechanical Drawing 5, 10	Mechanical Engineering I.
†Blacksmithing 2½, 5	Shopwork IV.
†Military Drill 2½, 5	Military IV.

SECOND TERM.

Physics 3.	Physics I.
Physical Laboratory 2, 4	Physics III.
Algebra 5	Mathematics II.
Chemistry 5, 7	Chemistry II.
†Mechanical Drawing 2½, 5	Mechanical Engineering II.
†Blacksmithing 2½, 5	Shopwork V.
†Military Drill 2½, 5	Military V.
Physical Culture 1, 2	Physical Culture II.

THIRD TERM.

Physics 3	Physics II.
Physical Laboratory 2, 4	Physics IV.
Algebra 5	Mathematics III.
Surveying 5, 9	Mathematics X.
Qualitative Analysis 6, 10	Chemistry XV.
†Military Drill 2½, 5	Military VI.

JUNIOR YEAR.

FIRST TERM.

Mine Surveying 3, 6	Mathematics XIII.
Analytical Geometry 5	Mathematics VII.
Descriptive Geometry 5	Mechanical Engineering V.
†Machine Shop 1½, 2½	Shopwork VII.
†Geology 5	Geology I.
Military Drill 2½, 5	Military VII.
Military Science 1	Military Science I.

SECOND TERM.

Tunneling and Leveling, 5	Mathematics XIV.
Geology 5	Geology II.
Descriptive Geometry 1½, 3	Mechanical Engineering XI.
Calculus 5	Mathematics VIII.
†Machine Shop 2½, 5	Shopwork VIII.
Military Drill 2½, 5	Military IX.
Military Science 1	Military Science II.

THIRD TERM.

Calculus 5	Mathematics IX.
Steam Engines and Boilers 4	Mech. Engineering VII.
Civics 5	Political Science II.
†Quantitative Analysis 5, 10	Chemistry V.
Military Drill 2½, 5	Military XI.
Military Science 1	Military Science III.

SENIOR YEAR.

FIRST TERM.

†Mineralogy 5, 7	Mineralogy I.
Mechanics of Engineering 5	Mechanical Engineering VIII.
Economics 5	Political Science I
†Physics 3½, 7	Physics V.
Military Drill 2½, 5	Military XII.
Military Science 1	Military Science IV.

SECOND TERM.

Mineralogy 5, 7	Mineralogy II.
†Assaying 3, 6	Chemistry IX.
Psychology 5	Mental Science I.
Mechanics of Engineering 5	Mechanical Engineering XII.
Military Drill 2½, 5	Military XIV.
Military Science 1	Military Science V.

THIRD TERM.

Mining Engineering 5	Mathematics XV.
Mining Hydraulics and Ventilation 5	Mechanical Engineering XVII.
†Assaying 3, 6	Chemistry X.
Mechanics of Engineering 5	Mechanical Engineering XIV.
Mineralogy 5, 7	Mineralogy III
Military Drill 2½, 5	Military XVI.
Military Science 1	Military Science VI.

LITERARY COMMERCE COURSE.

FRESHMAN YEAR.

FIRST TERM.

General History 5	History I.
English Composition 5	English I.
Commercial Arithmetic 5	Arithmetic I.
Algebra 5	Mathematics I.
Elocution 1, 2	Elocution I.
Military Drill 2½, 5	Military I.
Physical Culture 1½, 3	Physical Culture I.

SECOND TERM.

General History 5	History II.
English Composition 5	English II.
Commercial Arithmetic 5	Arithmetic II.
Geometry 5	Mathematics IV.
Elocution 1, 2	Elocution II.
Military Drill 2½, 5	Military II.
Physical Culture 1½, 3	Physical Culture II.

THIRD TERM.

Modern History 5	History IV.
Composition and Rhetoric 5	English III.
Commercial Arithmetic 5	Arithmetic III.
Geometry 5	Mathematics V.
Penmanship 1	Penmanship I.
Military Drill 2½, 5	Military III.
Physical Culture 1½, 3	Physical Culture III.

SOPHOMORE YEAR.

FIRST TERM.

Bookkeeping 5	Bookkeeping I.
Latin 5 or	Latin I.
German 5	German I.
Rhetoric 5	English IV.
Penmanship 1	Penmanship II.
Floriculture 2, 3	Floriculture I.
Military Drill 2½, 5	Military IV.
Physical Culture 1½, 3	Physical Culture IV.

SECOND TERM.

Bookkeeping 5	Bookkeeping II.
Latin 5 or	Latin II.
German 5	German II.
Rhetoric 5	English V.
Penmanship 1	Penmanship III.
Algebra 5	Mathematics II.
Military Drill 2½, 5	Military V.
Physical Culture 1½, 3	Physical Culture V.

THIRD TERM.

Bookkeeping 5	Bookkeeping III.
Latin 5 or	Latin III.
German 5	German III.
Penmanship 1	Penmanship IV.
Algebra 5	Mathematics III.
Physiology 5, 7	Zoology IV.
Military Drill 2½, 5	Military VI.
Physical Culture 1½, 3	Physical Culture VI.

JUNIOR YEAR.

FIRST TERM.

Bookkeeping 3	Bookkeeping IV.
Latin 5, or,	Latin IV.
German 5	German IV.
English 5	English VII.
Penmanship 1	Penmanship V.
Stenography 4	Stenography I.
Typewriting 4	Typewriting I.
Military Drill 2½, 5	Military VII.
Military Science 1	Military Science I.
Physical Culture 1½, 3	Physical Culture VII.

SECOND TERM.

Bookkeeping 3	Bookkeeping V.
Latin 5, or,	Latin V.
German 5	German V.
Penmanship 1	Penmanship VI.
Stenography 4	Stenography II.
Typewriting 4	Typewriting II.
English 5	English VIII.
Military Drill 2½, 5	Military VIII.
Military Science 1	Military Science II.
Physical Culture 1½, 3	Physical Culture VIII.

THIRD TERM.

Bookkeeping 3	Bookkeeping VI.
Latin 5, or,	Latin VI.
German 5	German VI.
Penmanship 1	Penmanship VII
Civics 5	Civics I.
Stenography 4	Stenography III.
Typewriting 4	Typewriting III.
Military Science 1	Military Science III.
Military Drill 2½, 5	Military IX.
Physical Culture 2½, 5	Physical Culture IX.

SENIOR YEAR.

FIRST TERM.

Economics 5	Political Science I.
Commercial Law 3	Commercial Law I.
English 5	English X.
Aesthetics 5	Household Science XII.
Military Science 1	Military Science IV.
Military Drill 2½, 5	Military X.
Physical Culture ¾, 1½	Physical Culture X.

SECOND TERM.

Commercial Law 3	Commercial Law II.
English 5	English XI.
Aesthetics 5	Household Science XIII.
Psychology 5	Mental Science I.
Military Science 1	Military V.
Military Drill 2½, 5	Military XI.
Physical Culture ¾, 1½	Physical Culture XI.

THIRD TERM.

Astronomy 5	Mathematics XI.
Plant Morphology 5, 7	Botany I.
English 5	English IX.
Military Science 1	Military Science VI.
Military Drill 2½, 5	Military XII.
Physical Culture 2½, 5	Physical Culture XII.

A student may upon obtaining written consent of the heads of departments interested, substitute higher mathematics for any other branch of study.

DEPARTMENTS OF INSTRUCTION.

MENTAL AND POLITICAL SCIENCE.
AGRICULTURE.
HISTORY AND LATIN.
HOUSEHOLD SCIENCE.
MODERN LANGUAGES.
MECHANICAL AND ELECTRICAL ENGINEERING
CHEMISTRY AND PHARMACY.
ENGLISH LANGUAGE AND LITERATURE.
MATHEMATICS AND ENGINEERING.
ZOOLOGY.
BOTANY AND HORTICULTURE.
ELOCUTION.
FLORICULTURE AND GARDENING.
FORESTRY.
BACTERIOLOGY.
DRAWING.
MILITARY.
PHYSICAL CULTURE.
MINING.
LITERARY COMMERCE.
MUSIC.

MENTAL AND POLITICAL SCIENCE.

THOMAS M. GATCH, A. M., PH. D.

Course I.—*Economics.*—Senior year; first term. During the first part of the term our aim is to familiarize the student with the principles of the science. The last part of the term is devoted principally to debates, informal discussions and theme work. Our library is well supplied with reference books in this department. Students are encouraged in original investigation. The labor question, socialism, taxation, money and tariff receive attention. Five hours a week. Gide's "Principles," with Lectures.

Course II.—*American Politics.*—Junior year; third term. The construction of various articles and clauses of the Constitution of the United States has led to party differences. The Constitution can be best studied when taken in connection with the history of political parties. The study, thus conducted, approaches the laboratory method, the most practical and satisfactory of all methods, where it can be employed. It is of interest to the whole republic that young citizens should be able to learn that true national party differences have a history and a recognized basis of existence, and should be prevented from following factitious party differences, contrived for personal objects of selfish men. Five hours a week. Johnson's "History of American Politics," wlth lectures.

Course III.—*Psychology.*—Senior year; second term. This study presupposes a considerable acquaintance with the structure and functions of the brain and nervous system. Students acquire this knowledge in the laboratory under the direction of the professor of zoology. The intellectual faculties, the sensibilities and the will are carefully studied; the various schools of philosophy are criticised and compared and themes are often required from members of the class. Five hours a week. Lectures principally, with Buell's "Essentials" as a guide.

AGRICULTURE.

JAMES WITHYCOMBE, M. Agr., Professor of Agriculture.
F. L. KENT, B. Agr., Associate Professor of Agriculture.
W. J. KENT, Foreman.

The object sought throughout the entire agricultural course is to familiarize the student with the art and science of agriculture. This embraces the study of zoology, botany, chemistry and bacteriology, the sciences related to agriculture; and the supplementary studies of mathematics, economics, physics, history, language and other cultural branches, all of which broaden the course of study and tend to elevate the educated farmer to the intellectual level of other professions.

The college laboratories are strictly modern in their appointments and are supplied with the latest equipments, which afford the student unusual opportunities for making a thorough study of all the sciences related to agriculture.

While the theory of agriculture, as based upon the sciences, is taught, the industrial side is not overlooked. Instruction is given in wood and iron work in the carpenter and blacksmith shops under competent supervision. The student is also taught how to handle and care for steam machinery, and is made thoroughly familiar with the mechanism of the farm traction engine.

The instruction given in the class-room is directly supplemented by actual demonstrations of the best agricultural practice on the college farm, thus giving to the student an opportunity to observe the methods employed, and enabling him to note from time to time the results of the practical applications of science to agricultural methods.

The college and station farm consists of 220 acres, 140 of which are devoted to farm crops, pasture, and experimental purposes. The farm is equipped with dairy building, horse-barn, cattle-barn, silos, piggery, tool-house, engine-house, and with typical specimens of several breeds of stock.

Students laboring on the farm and in the gardens, receive from 12½ to 20 cents per hour. Only comparatively few persons can be so employed, as the amount of work to be done is limited. Those only who by their work prove to be valuable laborers will be employed.

DAIRYING.

One of the purposes of the Oregon Agricultural College is to advance the business industries of the state. It is believed that dairying is one of the most important lines of work that can now be undertaken in Oregon. There are large bodies of land in the state which are especially adapted to this industry. For this reason dairying has been introduced as a branch of study in the agricultural course. Modern laboratories have been provided for such instruction and fitted up with all the necessary machinery for carrying on the work in the most approved way. An expert dairyman is in charge of this work.

All students in the agricultural department will be required to study dairying not only as a science but as an art. Those taking the household science course will have the same opportunities as the agricultural students.

This is a line of practical work which, it is believed, will prove of great advantage both to the student and to the state. The practical instruction includes both butter and cheese making.

A short course has been provided, as described elsewhere in the catalogue, whereby practical instruction in dairying may be obtained by those who can not avail themselves of a college course.

The instruction in applied agriculture extends through the freshman, sophomore, junior and senior years, as shown in the following synopsis of courses:

Course I.—*Breeds of Stock.*—Freshman year; third term. The study of the history of the different classes of farm stock, their origin and characteristics. By means of charts, in the class-room the student is made familiar with the different points of animal form preparatory to the use of the score-card system for judging farm animals. This is followed by a practical application of this system in judging dairy cows, beef cattle, mutton sheep and swine. In this manner the student obtains useful information relative to animal form and function, and thus becomes acquainted with the points of excellence in the typical pure bred, as well as the points of merit in the animal designed for the butcher's block. Five hours a week.

Course II —*Theoretical Dairying.*—Sophomore year; second term. The principles of modern dairy practice will be taught in the classroom. Instruction will be given by textbook and lectures. Five hours a week for one half term.—Wing "Milk and Its Products."

Course III.—*Soils and Manures.*—Sophomore year; second term. The origin and formation of soils; soil tillage; management and application of manures; green manuring; organic and mineral manures; soil exhaustion; rotation of crops, and methods of improving worn-out soils. Five hours a week for one half term. Robert's "Fertility of the Land."

Course IV.—*Irrigation and Drainage.*—Sophomore year; third term. In the discussion of this subject it will be the aim to deal with those relations of water to soils and to plants which must be grasped in order to permit of a rational practice of applying, removing or conserving soil moisture in crop production. The subject will be considered from the standpoints of the farmer, the fruit grower and the gardener rather than from that of the engineer. The various methods of applying water; the laying out and construction of farm drains; and the effect of irrigation and drainage on the chemical and physical conditions of the soil will be considered. Five hours a week. King's "Irrigation and Drainage."

Course V.—*Dairying.*—Junior year; first term. (*a*) Practical work in the dairy for agricultural students. The principles taught in the sophomore year will be put into practice in the actual work of the manufacture of butter and cheese. The Babcock test, rennet tests, and curd tests, as well as the subjects of creamery accounting will receive due attention. Five hours a week.

(*b*) Practical work in the dairy for household science students. This work is essentially the same as above. Wing's "Milk and its Products" will also be used as a text during a portion of the term. Five hours a week throughout the third term.

Course VI.—*Stock Feeding and Breeding.*—Senior year; third term. Stock feeding covers the subject of rations for milk and meat production; how best balanced for economical feeding. Stock breeding covers the subjects of atavism, heredity, in-and-in-breeding, variation, prepotency and care of breeding animals. Opportunity is given for judging and scoring live stock, and for studying the essential points of breeds adapted to different purposes. Four hours a week. Shaw, Animal Breeding.

Course VII.—*Soil Physics.*—Senior year; third term. The work will include a study of various types of soils as to their mechanical structure and analysis; of conditions influencing temperature, capillary action and water-holding capacity of soil; effects of drainage and cultivation upon the conservation of moisture in soils; the texture of soils; the use of fertilizers and amendments and their effects on soils. Class room and laboratory work, seven hours a week.

Course IX.—*Veterinary Science.*—Senior year; third term. This subject will be taught by lectures covering the anatomy of the horse, and taking up the diseases most common to domestic animals, giving causes, symptoms, and treatment for the same. Special stress is placed upon proper treatment to prevent disease in domestic animals. Five lectures a week. Reynold's "Veterinary Studies."

Course X.—*Agricultural Steam Engine.* — Discussions and practical work relative to the structure, care and operation of farm steam engines and boilers, with special reference to the principles involved.

Instruction is given largely by lectures, suitable books being selected for reference. Miles' book on drainage. Curtis' "Horses, Cattle, Sheep, and Swine." Warfield's "Cattle Breeding," Stewart's "Stock Feeding." Armsby's Manual of Cattle Feeding. Shaw's "Study of Breeds." "Soil," King. "Physics ot Agriculture," King. "Feeds and Feeding," Henry.

HISTORY AND LATIN.

J. B. HORNER, A. M., LITT. D., Professor.

HISTORY.

Course I.—*Greek and Roman History.*—Freshman year; first term. Includes the study of general Hellenic development; the Athenian leadership; the Hellenistic or Alexandrian conquests and kingdoms. The political organizations of republican Rome in the prae- and post-Punic periods. Study of the pagan empire; Teutonic migrations. The Christian empire under Roman control. Five hours a week.

Course II.—*Mediæval History.*—Freshman year; second term. A study of social and political institutions of the fifth to the fifteenth centuries. Five hours a week.

Course III.—*History of Eastern Peoples.*—Sophomore year; second term. A survey of the history of China, Japan and India. Religion, arts and general culture of Egypt, Chaldæa, Assyria, Babylonia, Persia. Five hours a week.

Course IV.—*Modern History.*—Sophomore year; third term. This is a study of the era of the reformation and renaissance. (1490-1648). A general study of the age of Louis XIV., Frederick the Great, Anne and the Georges, Maria Teresa, and Peter the Great. The great French revolution and the wars of Napoleon. The states-general of 1789 to the congress of Vienna, 1815. German and Italian freedom and unity. Discussions touching the material progress of the age; famous works of art; foundations, inventions, discoveries, enterprises, improvements and investigations. Five hours a week.

The college is supplied with maps, charts, and a good working library of historical reference books.

In addition to the individual work of the student, as outlined above, lectures are given on the more important periods, such as the great reformation, thirty years' war, the English reformation, and the French revolution. Textbook, Myers' General History.

LATIN.

Course I.—Freshman year; first term. First eighty-five pages of Collar & Daniel's "First Year Latin," also synopsis of regular verb in each of the four conjugations.

Course II.—Freshman year; second term. Same textbook continued to page 151 with frequent reviews; also exercises in composition.

Course III.—Freshman year; third term. Irregular verbs. Conditional sentences. Periphrastic conjugation, etc. Caesar—Book II.

Course IV.—Sophomore year; first term. Caesar—Book I.—Collar's edition. Allen & Greenough's Latin Grammar.

Course V.—Sophomore year; second term. Cicero's Orations. Allen & Greenough's Grammar.

Course VI.—Sophomore year; third term. Aeneid—Collar's edition. Allen & Greenough's Grammar.

If at any time there is a demand, classes desiring to pursue the study of Latin beyond Course VI may do so upon making application. The first year's instruction is largely grammatical, prominence being given to Latin writing as the best method of acquiring a mastery of the language, Latin composition is eminently helpful in scientific research, and it is suggestive to the student of English. This preliminary work done, the student is then trained to appreciate the literature. Attention is called, during the reading of various authors, to those numerous problems in the history, thought and institutions of the Romans which illustrate similar phenomena noticeable among ourselves. The contribution of the Romans to the language, literature, and institutions of our time is so great that a thorough acquaintance with their life is of the highest educational value.

HOUSEHOLD SCIENCE.

MARGARET C. SNELL, M. D., Professor.
MARY AVERY, Assistant in Sewing.

Self interest and public interest make it apparent to every intelligent person how greatly in need are subjects pertaining to the home of being "touched to fine issues;" hence their introduction as studies into college curricula.

We have been reviled as "the most common schooled, and least cultivated, among all civilized nations," and this largely through our deplorable indifference to, and ignorance of, the common facts and necessities of life.

"The home as we find it to-day has scant warrant that anything born of its teaching is worth while to impart, yet the problem grows of how to get better results, how to lessen the labor of the farmer's wife, the washer-woman, the cook, the boarding-house keeper, the city missionary, the school teacher, the woman of fashion."

The solution requires something more than the knitting of the brow over theories; there must be actual testing of these theories by practice in the college laboratory, if they are to have value and permanence. The precious acquisition of the scholar who *knows*, must be further supplemented by that of the artist who *does*.

The various subjects pertaining to home life are taught under the following heads:

Course I.—*General Hygiene.*—Freshman year; first term. Good health is acknowledged as one of the prime factors of success in life; lectures and talks on this important subject are not neglected. The amenities of home, and readings on kindred topics, give mental occupation to the sewing hour. One hour a week.

Courses II, IV, V.—*Sewing*.—Freshman year. During the first term there are sewing lectures and practice work, one hour a day, on sewing samples. Here are acquired and strengthened those invisible impulses: industry, dexterity, patience, exactness. Five hours a week.

Second term, sewing continued. Five hours a week.

During the third term sewing is combined with the making of simple garments. Readings, conversation.

Courses VI, VII, VIII.—*Dressmaking*.—Sophomore year. Cleverness with scissors, tape line, and needle finds in dressmaking, millinery, home furnishing, a large field for the application of art principles to the living, moving canvas of actual life.

Instruction in dressmaking is an important branch of domestic science. Lectures will be given on the following subjects: The methods of manufacturing thread, cloths and other dressmaking material; hygienic principles of dressmaking; study and sketching of drapery; history of costume, etc.

During the first term the work includes draughting and making simple skirts, cutting, fitting and making lined waists from patterns; a study of the texture of goods. Five hours a week.

Throughout the second and third terms instruction is given in draughting and making lined waists, matching stripes and plaids, study of woolen textiles. Five hours a week.

Courses IX, X, XI.—*Cookery*.—Junior year. The first term's work includes instruction in canning of fruits, one-half term; three lectures; one hour a week practice work in the kitchen laboratory; technological cookery; preparatory work in chemistry of foods. Two hours a week. Laboratory fee, $1.

The second term—practice in cookery, two hours per week, fee $1.50.

The third term—practice in cookery, two hours per week, fee $1.

Course III.—*Etiquette.*—Freshman year; second term. Lectures and talks on social forms and usages; the art of entertaining.

Course XII.—*Aesthetics.*—Senior year; first term. Lectures and recitations on the subject of aesthetics. "Aesthetics," Day.

This term is given to the general subject of aesthetics in its relations to the subjective and objective world; the kinds and laws of beauty; class readings from various authors on aesthetics; the application of aesthetic principles to discourse as we find it illustrated in the great master pieces of literature. Five hours a week.

Course XIII.—*Aesthetics.*—Senior year; second term. Application of aesthetic principles to the remaining fine arts, with a study of the best authors on these varied subjects. The two arts receiving especial attention during the coming year will be architecture and painting. Five hours a week.

Course XIV.—*Domestic Lectures.*—Senior year; third term. The term's work will include lectures on the following subjects: Special hygiene, including parentage, care of children, heredity, etc.; sanitation of the home; home furnishing; emergency lectures; fireside practice, etc. Five hours a week.

Course XIV—Helen Campbell's "Household Economics," and Pomeroy's "Ethics of Marriage."

GERMAN.

GERARD TAILLANDIER.

Opportunity to study German is offered throughout the different courses and is compulsory in the course in pharmacy during the sophomore and junior years. We teach in a large measure by the conversational method, and aim to bring the student so far that he can read with ease and facility, and understand so much of the language as will be most helpful to him in practical life. A knowledge of German is a business possession of undoubted value for any young man, or young woman.

Courses I to IV.—*Elementary German.*—Collar's Eysenbach—German grammar; First German Reader, Muller and Wenckebach's Glück Auf. Hewett's German Reader.

Courses IV, V and VI.—*Advanced German*; Jagemann's German Syntax, Bronson's Colloquial German, Keller: Bilder aus der deutschen Litteratur, selections from Schiller's Maria Stuart, Wilhelm Tell or Lessing's Nathan der Weise.

MECHANICAL AND ELECTRICAL ENGINEERING.

GRANT A. COVELL, M. E., Professor.
E. C. HAYWARD, E. E., Assistant.
M. CLYDE PHILLIPS, B. M. E., Instructor in Ironwork and Drawing.
THOMAS BILYEU, B. S., Instructor in Woodwork.

Students in this department are allowed to choose either the course in mechanical engineering or the course in electrical engineering. Each course leads to the degree of Bachelor of Science, and the two courses are identical until the beginning of the junior year.

The course in mechanical engineering is intended especially for young men who expect to choose an industrial vocation and for those who are already, or expect to be, connected with some of the manufacturing establishments of the country.

The course in electrical engineering is designed to meet the needs of those who desire to turn their attention towards electrical science, the designing, the installation and the management of electric light and power plants, etc.

The shops are well equipped with tools and machinery from the best makers in the country; the idea being not only to have the shops well supplied with the necessary tools but also to make each shop a model as regards quality of equipment and systematic arrangement.

The uses of the various tools in the shop are taught by a series of exercise pieces which the student is required to make. After completing the exercises, the regular work consists in building and repairing machinery in the machine shop, mending farm implements, and making tools in the blacksmith shop, and other useful articles in the wood shop. So far as possible, all work in the shops is executed from drawings and blue prints, which must be followed accurately.

In the drafting room the student begins with linear drawing and follows a progressive course until he is able to make complete working drawings of whole machines, and finally he is encouraged to produce designs of his own and to make complete drawings and blue prints of them.

The scientific principles involved in machines and mechanical movements are taught in the class-room, as well as the application of mathematics to problems in mechanical engineering. The student is required to solve original problems and to depend upon his own judgment and ingenuity as far as possible.

EQUIPMENT.

The machine shop is equipped with one 24″ x 24″ iron planer, one universal milling machine, one universal tool grinder, one radial drill, one 20″ drill press, one 20″ engine lathe, one 16″ engine lathe, three 14″ engine lathes, one 15″ shaper, one emery grinder, two 10″ speed lathes, twelve bench vises, and numerous small tools, such as hammers, chisels, drills, reamers, taps and dies.

The blacksmith shop contains twenty stationary forges operated by an electric motor fan. Each forge is provided with anvil, hammers and tongs. The shop also contains two vises, a swedge block and a full set of swedges, fullers, and heading tools.

The woodshop contains one 4″ four-sided moulder, one 24″ surface planer, one iron saw table with rip and cut-off saws, one band saw, one jig saw, one 20″ pattern-maker's lathe, one post boring machine, four 12″ wood-turning lathes, and twenty hand benches, each equipped with a set of tools consisting of saws, planes, chisels and other small tools. Power is supplied by a 10 horse power electric motor.

The power house is combined with the heating plant and contains one 54 inch and two 60 inch tubular boilers with pumps, injectors and feed water heater. The electrical equipment consists of two 12½ kilowatt direct current generators and one 30 kilowatt alternator, all driven by a 40 horse power, high speed, automatic engine. The direct current generators operate the motors in the several shops and laboratories, while the alternator furnishes lights for the College buildings and grounds.

The steam, electrical and heating plants of the college furnish opportunity for much valuable experimental work in engineering, such as tests of boilers, engines, dynamos, motors, fans, pumps and injectors. The department is supplied with indicators, gauges, planimeters and other instruments to facilitate this work.

A Riehle testing machine of 50,000 pounds capacity, operated by an independent motor, affords means of testing the strength of metals, woods, stones or brick.

The following is an outline of the work done in the mechanical department:

SHOPWORK.

Courses I, II and III.—*Woodwork.*—Freshman year. A course in woodwork which includes carpentery, joinery and wood-turning, also the care and use of tools. Five hours a week throughout the year.

Courses IV, V and VI.—*Blacksmithing.*—Sophomore year. In this course the student is taught how to make and manage a forge fire; to shape iron by bending, drawing, upsetting and welding, and finally to make and temper cutting tools for the shops. Five hours a week.

Course VII.—*Machine Shop.*—Junior year; first term.

This course is devoted principally to chipping, filing, polishing and hand work. Five hours a week.

Courses VIII and IX.--*Machine Shop.*—Junior year; second and third terms. These include a series of exercise pieces in turning, shaping, milling and drilling which the student is required to make from drawings. Five and four hours a week respectively.

Courses X, XII and XIV—*Woodwork.*--Senior year. These courses are elective and are intended for students who desire to specialize in this branch. Particular attention is given to the care and management of wood-working machines and to pattern-making. Five hours a week throughout the year.

Courses XI, XIII and XV.—*Ironwork.*—Senior year. These are elective courses and follow course IX. The work consists of constructing parts of machines, repair work, and making tools for the shops. Five hours a week throughout the year.

MECHANICAL ENGINEERING.

Courses I, II and III.—*Mechanical Drawing*.—Sophomore year. In these courses the student begins at once to make mechanical drawings of simple objects and finally makes sketches of machines from which working drawings are made. Ten hours, the first term; five hours the second term and three hours the third term.

Course IV.—*Mechanism.*—Junior year; third term. This course treats of the motion of machine parts, and is introductory to the course in machine design. Seven hours a week.

Courses V and VI.—*Descriptive Geometry.*—Junior year; first and second terms. The work in these courses is largely drawing. It involves the solution of problems in projection and intersection of lines, surfaces and solids. Five and three hours a week respectively.

Course VII.—*Steam Engines and Boilers.*—Junior year; third term. A study of the construction, care and operation of steam engines and boilers; recitations and lectures. Four hours a week.

Course IX.—*Thermodynamics.*—Senior year; first term. Steam and other engines considered as heat engines. Two hours a week.

Courses VIII, XII and XIV.—*Mechanics of Engineering.*—Senior year. A course in applied mechanics. The first two terms are occupied with a discussion of statical and dynamical problems. During the last term the strength of materials is studied with special reference to beams, girders and trusses; also the mechanics of fluids relating to pressure, flow and carrying capacity of pipes and open ditches. Open only to those who have completed Mathematics VIII and IX. Five hours a week throughout the year.

Courses XI and XV.—*Machine Design.*—Senior year; second and third terms. A course applying the principles brought out in the courses in mechanism and mechanics to the design and construction of machine parts. Numerous practical problems are solved, the data for many of them being taken from machines used in the college, so that the student may compare his results with those used in practice. Considerable draughting is done in connection with this course. Seven hours a week.

PHYSICS.

Courses I and II.—*Elementary Physics.*—Sophomore year; second and third terms. These courses cover the usual topics of mechanics, heat, electricity and magnetism, sound and light. Instruction is given by means of lectures and recitations. Three hours a week.

Courses III and IV.--*Elementary Laboratory Work.*—Sophomore year; second and third terms. These are laboratory courses required in conjunction with courses I and II. Students are required to perform a series of experiments in the laboratory, draw their own conclusions and submit a written report to the instructor. Four hours a week.

Course V.—*Physics.*—Senior year; first term. A laboratory course, which is a continuation of the preceding courses, and deals more especially with experiments in heat, light, sound and electricity. Six hours a week.

ELECTRICAL ENGINEERING.

Courses I, II and III.—*Electricity and Magnetism.*—Junior year; first, second and third terms. Dealing with the general theory of electricity and magnetism and their most common application; such as the telephone, telegraph, electro-plating, electric lighting, etc. In the laboratory the student becomes familiar with the usual measurements employed by the electrical engineer. Special attention is given to the calculation of magnetic circuits, thus leading up to the course in dynamo design. Lectures, recitation and laboratory work. Seven hours a week first and second terms; three hours third term.

Courses IV, V and VI.—(a) *Alternating currents.*—Senior year; first term. Being a brief development of the elementary theory of alternating currents, using both the graphical and analytical methods of calculation. A continuation of courses I, II and III. Open only to those who have completed Mathematics VIII and IX. Lectures and recitations. Three hours a week.

(b) *Dynamo Design.*—Second term.—Theory and practice of the design of direct and alternating current dynamos and motors, including calculation and construction of field magnets, armatures, commutators, etc. Lectures and recitations, supplemented by the making of models in the laboratory. Three hours a week.

(c) *Practical Electrical Engineering.*—Third term.—Considerable time will be devoted to practical engineering problems, such as the calculation of circuits, installation of lighting and power plants, power transmissions, etc. Three hours a week.

(d) *Laboratory.*—An advanced course, being a continuation of the laboratory work carried on in courses II and III, including, in addition to the more common measurements, the measurement of insulation resistance, location of faults in cables, and construction of apparatus. Four hours a week throughout the year.

TEXT BOOKS.

BOOKS.	AUTHOR.	PUBLISHER.
Physical Laboratory Manual	**Chute**	**D. C. Heath**
High School Physics	**Carhart & Chute**	**Allyn & Bacon**
Technical Mechanics	**E. R. Maurer**	**Wiley & Son**
The Strength of Materials	**Merriman**	**Wiley & Son**
Steam Engines and Boilers	**J. H. Kinealy**	**Spon & Chamberlain**
Descriptive Geometry	**Linus Faunce**	**Ginn & Co.**
A Practical Course in Mechanical Drawing	**Fox & Thomas**	**Van Nostrand Co.**
Machine Design, Part I	**Jones**	**Wiley & Son**
Electricity and Magnetism	**Sylvanus Thompson**	**MacMillan**
Elementary Practical Physics, Vol. II	**Stewart & Gee**	**MacMillan**
Electro-Magnetism and the Construction of Dynamos	**D. C. Jackson**	**MacMillan**
Alternating Currents and Alternating Current Machinery	**Jackson & Jackson**	**MacMillan**

CHEMISTRY AND PHARMACY.

A. L. KNISELY, M. S., Professor.
JOHN FULTON, B. S., Associate Professor.
C. M. MCKELLIPS, PH. G., PH. C., Instructor.
FRANK E. EDWARDS, B. M. E., Instructor.

EQUIPMENT.

The Department of Chemistry occupies the entire south wing of Agricultural Hall. The various laboratories, lecture and recitation rooms are equipped for thorough, accurate work.

On the first floor are located the storeroom for chemicals and apparatus, and the laboratory for general and qualitative chemistry. This laboratory is supplied with gas, water and sinks to accommodate 100 students. A series of hoods extend along one side of the laboratory so as to keep the air in the room free from noxious gases and fumes.

The laboratory for careful quantitative analysis is located on the second floor. This laboratory is completely equipped for the work intended. A chemical library and balance room joins this laboratory. The chemical department of the college is equipped with two torsion balances, two high grade assay balances and four analytical balances.

On the third floor is located the lecture and recitation room for general chemistry; this room is provided with raised seats and has a seating capacity for 150 students. The lecture table in this room is supplied with gas, water and electric wires of sufficient size for a stereopticon or electric furnace. On this floor are also two small recitation rooms, each capable of accommodating 20 to 25 students.

A dark room is available whenever work is being carried on with the polariscope or spectroscope.

One room on the third floor is available when the subject of gas analysis is being studied.

All recitation and lecture rooms are supplied with desks, gas and water so that at all times the instructor in charge can fully illustrate the subject under consideration.

CHEMISTRY.

The study of chemistry is begun in the first term of the sophomore year. Prerequisite, Freshman mathematics.

Course I.—*General Inorganic Chemistry.*—Non-metals.—Sophomore year; first term. A daily exercise throughout the first term is devoted to recitations, lectures and laboratory practice. In this course special attention is given to the fundamental principles of the science, which are suitably illustrated either by experiments performed by the student in the laboratory, or, when too intricate and expensive of time, by the instructor before the class in the lecture room. The elements are discussed individually as well as their more important compounds.

The *practicum* of this course consists of a series of laboratory exercises dealing with the elements studied and is designed to introduce the student to chemical manipulation. Seven hours a week.

Course II.—*General Inorganic Chemistry.*—Sophomore year; second term. The study of the metals is entered upon in the second term and is conducted similarly to the study of the non-metals. The more important metals are individually discussed under the following heads: history, occurrence in nature, properties, preparation, uses, tests, and compounds. Special attention is given to metals and their compounds which are of industrial importance.

The laboratory work of the second term consists of a study of the properties of the metals, being an introduction to qualitative analysis. This course must be preceded by Chemistry I. Seven hours a week.

Course III—*Elementary Qualitative Analysis.*—Sophomore year; third term. The student is required to apply and study the reactions involved in the ordinary methods of separation and identification of substances. The study includes the reactions, ordinarily used in qualitative analysis, but deals with only those substances usually met with in chemical work. The student repeatedly works through a scheme of separation in making qualitative analyses of unknown substances. Prerequisite Chemistry I–II. Four hours a week.

Course IV.—*Agricultural Chemistry.*—Junior year; first term. This course deals with the more intimate relation of the science to agriculture. Such topics as soil composition, elements essential to plant growth, soil exhaustion, fertilizers; chemistry of cattle foods, nutrition, dairy products and food adulteration are dealt with as fully as time permits. Prerequisites, Chemistry I, II and III. Five hours a week.

Course IV-a.—*Agricultural Chemistry.*—Junior year; second term. This is a continuation of course IV and extends through the second term. Five hours a week.

Course V—*Elementary Quantitative Analysis.*—Junior year; third term. The student is required to make the ordinary fundamental determinations of moisture, aluminum, calcium, magnesium, copper, lead, potash, sulfuric acid, phosphoric acid, chlorine, and carbonic acid by gravimetric processes;

estimations by volumetric methods including alkalimetry, acidimetry, precipitation, and oxidation will be undertaken. The work is so planned as to familiarize the student with the standard gravimetric and volumetric methods. This is a required course for all pharmacy students and is elective for students who have completed chemistry I, II and III, or XV. Ten hours a week.

Courses VI, VII, VIII.—*Advanced Quantitative Analysis.*—Senior year; first, second and third terms. A continuation of course V. This work extends throughout the senior year and is arranged especially for students electing theses in the department of chemistry. Elective. Ten hours a week.

Course IX.—*Assaying.*—Senior year; second term. A course in practical assaying of gold, silver, iron, mercury and copper ores. Must be preceded by chemistry I, II, III, and mineralogy I. Elective. Six hours a week.

Course X.—*Assaying.* Senior year; third term. A continuation of course IX. Elective. Six hours a week.

Course XI.—*Chemistry of Common Life.*—Sophomore year; third term. This is a short course treating of organic compounds of common life. It alternates during the third term with course III. This work is required of all students in agricultural and household science courses. Prerequisites chemistry I–II. Three hours a week.

Courses XII, XIII and XIV.—*Chemistry of Foods.*—Senior year. An elective extending through the senior year in the household science course. It is an expansion of the work in course XI, but limited to a study of foods from a chemical and scientific standpoint. This work must be preceded by chemistry V. Seven hours a week.

Course XV.—*Qualitative Analysis.*—Sophomore year; third term. This course which is more extensive than Course III is designed for students in pharmacy and mining. It gives practice in the analysis of unknown mixtures and chemical compounds for both acids and bases. Prerequisites chemistry I–II. Ten hours a week.

Courses XVI, XVII.—*Pharmaceutical Chemistry.*—Junior year; first and second terms. This subject is designed for students of the pharmacy course. It embraces inorganic chemistry the first term and organic chemistry the second term. Prerequisites I, II, XV. Five hours a week.

Courses XVIII, XIX, XX.—*Pharmaceutical Analysis.*—Senior year; first, second and third terms. This work consists of advanced qualitative and quantitative analysis, both organic and inorganic. Under this head are taken up the separation, identification and determination of the active constituents of alkaloidal drugs and galenical preparations. During the spring term practical laboratory work in Toxicology is given. Ten hours a week.

THESES.

Undergraduates desiring to elect theses in the department of chemistry and pharmacy must have passed in one course of quantitative analysis.

GRADUATE ELECTIVES.

Elective work in chemistry is offered as a major or a minor subject for two years to candidates for the degree of Master of Science.

Advanced Analysis.—This course is intended for those who may desire to specialize in chemical work. It provides a greater variety of analytical work than can be given in courses V, VI, VII, VIII. It offers the following: analysis of limestone, coal, iron ores, milk, butter, cheese, water, urine, sugar, and various other materials. A student desiring to investigate along any particular line, as mineral, sanitary, or agricultural chemistry, may do so. This course is open as a major subject to students who have completed courses I, II, III or XV and V, VI, VII and VIII. In addition, a parallel course of reading must be taken, upon which the student will be required to pass a satisfactory examination at the end of the year. The work of the last year will be left largely to the student's choice, subject to the approval of the head of the department, and will serve as the basis for a graduation thesis. Hours to be arranged with the instructor.

GEOLOGY.

Course I.—*Geology*.—Senior year; first term. The course opens with work designed to acquaint the student with the common rocks and minerals as to their physical characters and appearance. The geological and mineralogical cabinets offer abundant opportunity for the study of specimens. The remainder of the course consists in a study of the aqueous, atmospheric, igneous, and organic agents in the earth's history; the structure and arrangement of rocks and the order of succession of strata. Elective in household science course. Five hours a week.

Course II.—This is advanced geology, principally mining and economic and designed for mining students. Course I is required. Seven hours per week.

MINERALOGY.

Course I.—*Determinative Mineralogy*.—Senior year; first term. An elective laboratory course open to seniors in both agricultural and mechanical courses. The student will make use of the blowpipe and reagents to determine and classify the more common metal-bearing rocks, and the ordinary gangues. Elective in all courses but mining. Six hours a week.

Course II succeeds course I, continuing blowpipe analysis. Six hours a week.

Course III.—This is a course in crystallography and consists of instruction in measurement of angles and crystal plotting. Six hours a week.

Course II.—*Metallurgy.*—Senior year; second term. The first part of the term will be devoted to the study of refractory materials, such as fire clay, etc., and to furnace construction. In the second part special attention will be given to fuels and to the proper methods of working metals and alloys. Seven hours a week.

PHARMACY.

In addition to the ordinary equipment in constant use in the pharmaceutical laboratory—mortars, percolators, evaporation dishes, graduates, beakers, pilltiles, spatulas, etc., the department is supplied with suppository moulds, compressors, drug mills, tablet triturate moulds, cachet and soft capsule filling and sealing apparatus, pill machine, pharmaceutical stills, etc.

Courses I and III.—*Pharmacognosy.*—Junior year; second and third terms. In these courses are considered both the gross structure and characteristics of the crude drugs and chemicals. The student is taught the appearance, taste, color, odor, fracture and habitat of the various crude drugs, and also receives careful drill on their Latin and English names. Special attention is directed toward the learning of the scientific classification of the vegetable drugs. The student has access to the specimens for study, and special effort is made to train the senses to the recognition of each of the drugs considered.

The pharmacognosy of the senior year consists in a thorough review of the work of the junior year and practice in the recognition of powders, liquids, chemicals, and pharmaceutical preparations. Two hours a week, Spring term.

Courses II, IV and VII.—*Pharmacy.*—Junior year. By means of a series of lectures and recitations during the first term, the student is made familiar with the nature and objects of the practice of pharmacy, as well as with the scientific principles underlying it. His attention is directed particularly to the various classes of Pharmacopœial preparations, beginning with those of the more simple character and gradually advancing until a thorough understanding is acquired concerning those of the most complex formulae.

Definitions are introduced wherever admissible, being supplemented by descriptive and theoretical considerations when necessary for a better understanding of the subject.

The work of the second and third terms is devoted largely to laboratory practice, during which time the student has ample opportunity for the practical application of the knowledge gained in the lecture room, and in the acquirement of pharmaceutical technique.

The preparations of the Pharmacopœia receive special attention, each student being required to make, independently, a sufficient number of these preparations to insure a thorough understanding of the processes and manipulations involved in their manufacture. Various unofficial preparations are also considered from time to time, especially those of the National Formulary.

The laboratory work is under the direct supervision of an experienced pharmacist and each student receives personal attention. The character of the instruction is such as will be of much practical benefit to the student in the subsequent event of his becoming a dispensing pharmacist. Two hours a week, first term, and five during second and third.

Course V.—*Therapeutics and Doses.*—Junior year; first term. The therapeutical uses of medicines serve as a basis for classifying them in a manner which will facilitate study. The definitions of medical terms are given special attention in the junior year. In this connection the student also learns the minimum and maximum doses of all remedial agents in active use in the modern practice of medicine. Two hours a week.

Course VI.—*Nomenclature.*—Junior year. In this connection the student is shown the practical application and use of the Latin language in the professions of medicine and pharmacy.

The Latin titles of the Pharmacopœia, National Formulary and the more common terms that occur in the prescription are made the subject of a series of recitations. One hour a week, first term.

Courses VIII and XIV.—*Materia Medica and Therapeutics.*—Senior year; first and second terms. All substances which find use in medicine are here studied one by one as to source, Latin and English names, formulae (in the case of chemicals), compounds and preparations, properties, method of preservation, industrial and domestic use, impurities and adulterations, antidote (in case of poisons) and dose.

In the consideration of crude organic drugs, attention is especially directed to the constituents responsible for the medicinal activity of the drug, e. g., alkaloids, glucosides, volatile oils, etc. Three hours a week.

Course IX.—*Operative Pharmacy.*—Senior year; first term. This course is a continuation of that of the junior year and includes such preparations of the Pharmacopœia and of the newer classes of remedies as were not considered in the junior year. Attention is given to the manufacture of the more difficult preparations, both galenical and toilet, and to the correct methods of manipulation involved in preparing medicines for dispensing in cachets, soft capsules, etc.

The composition of the more important Pharmacopœial preparations, and of the percentage strength of the active constituents of each, are made the subject of close study. The work of the term ends with a final review of the entire subject of pharmacy. Six hours a week.

Courses X and XV.—*Prescription Practice.*—Senior year. The recitation work consists of reading, interpreting, criticising prescriptions and calculating doses. During the third term a series of general quiz recitations is held. This is preparatory to the State Board examination. Special attention is given to incompatibilities and to the solubility of chemicals. Unsightly, dangerous and explosive mixtures are also considered under this head. In this laboratory course and that of operative pharmacy the student gains experience for the prescription counter, learning the difficulties there met with and how best to overcome them. He also gains in manipulative skill in making extemporaneous preparations.

Each student is required to personally perform the operations under the direct supervision of the instructor. The student works not from book prescriptions, but from prescriptions written in the ordinary practice of physicians and found on file in the drug stores. Seven hours a week second term and eight hours a week third term.

Course XI.—*Pharmacognosy and Synonyms.*—Senior year; third term. The pharmacognosy of the senior year consists in a thorough review of the work of the junior year and practice in the recognition of powders, liquids, chemicals, and pharmaceutical preparations.

In addition to the knowledge of the scientific classifications of the medicines already considered up to this time, the student is further instructed regarding many "common names," or synonyms, in general use in the ordinary practice of pharmacy. Three hours a week.

Course XIII.—*Toxicology.*—Senior year; third term. The important active poisons—both mineral and vegetable—are studied. Their physiological action, characteristic symptoms that follow their use, treatment and antidote are noted and commented upon. Attention is directed to the conditions and regulations provided by the Oregon Pharmacy law for the handling and sale of poisons within the state. One hour a week.

From time to time special lectures are given on hygiene, pharmaceutical jurisprudence, etc.

STATE EXAMINATION AND REGISTRATION.

At its meeting held on December 14, 1898, the Oregon State Board of Pharmacy passed the following resolutions endorsing the course here offered:

> WHEREAS, The Oregon State Agricultural College has established a course in pharmacy and chemistry that meets with the hearty approval of this Board, inasmuch as it offers a large proportion of practical work; therefore, be it
>
> *Resolved*, That the Oregon State Board of Pharmacy acting in accordance with Sections 5 and 6 of the Oregon Pharmacy Law as amended, grant to students of the Oregon Agricultural College, who complete the full course and hold a diploma from said institution, after they shall have been subjected to such examination, at Corvallis, Oregon, as this Board may approve, on the completion of the senior year, a certificate to act as a registered pharmacist in this state.
>
> *Provided*, That any student who may have taken the last two years of the course only and who does not hold the regular diploma from the said institution, on passing the examination aforesaid shall only be granted the certificate of a registered assistant.

The training in the pharmaceutical course is largely conducted in the laboratory for it is only by this means that the student can form an intimate personal acquaintance with the material and the best methods of manipulation. Thus it is that he receives systematic practice in dispensing, in the examination of drugs as to identity, purity, and strength, and in the manufacture of various preparations from crude drugs. The requirements of the U. S. Pharmacopœia are always kept in mind, and the student is always held strictly responsible for the purity of his preparations and the accuracy of his work. The course aims to teach students facts and principles of immediate use in the drug store, adapting the work to the needs of the practical pharmacist and manufacturing chemist. It is, however, further recognized that a thorough foundation must be laid for this work, and in view of this, two years of preparatory work are required in the college, or its equivalent in some other school. Students who have had equivalent work elsewhere can complete the course in pharmacy in two years.

EXPENSES IN CHEMISTRY AND PHARMACY.

Tuition is free at this institution, but to cover the cost of material used and wasted in the laboratories a small laboratory fee and a deposit for breakage will be charged in the chemical and pharmaceutical laboratories as is the custom in all institutions. These fees are payable each term strictly in advance.

Chemical laboratory: Courses I, II, III.

Material	$2.00
Deposit for breakage	1.00

Qualitative Analysis XV or Quantitative Analysis:

Material	$3.00
Deposit for breakage	2.00

Pharmaceutical Laboratory, per term:

Material	$3.00
Deposit for breakage	2.00

Assaying and Metallurgy, each per term:

Material	$3.00
Deposit for breakage	2.00

Laboratory work accompanying theses, per term:

Material	$3.00
Deposit for breakage	2.00

Mineralogical Laboratory, per term:

Material	$2.00
Breakage	1.00

Text and reference books in chemistry: General Chemistry, Bradbury, Newell, Young; Qualitative Analysis, Johnson and Prescott, Dennis and Whittlesey; Quantitative Analysis, Talbot, Smith and Cheever; Agricultural Chemistry, Johnson; Organic Chemistry, Remsen; Roscoe and Schorlemmer, Watt's Dictionary of Chemistry, Thorpe's Dictionary of Applied Chemistry, Thorpe's Industrial Chemistry, Wiley's Principles of Agricultural Chemistry, Fresenius, Crooke's Select Methods, Sutton's Volumetric Analysis, Stillman Engineering Chemistry, Official Methods, etc.

Text and reference books in pharmacy and materia medica: Handbook of Pharmacy, Coblentz; Practice of Pharmacy, Remington; Quantitative Analysis, Sturmer and Vanderkleed; Organic Analysis, Prescott; The Art of Compounding, Scoville; Medical Chemistry, Bartley; Materia Medica, Culbreth; Morris, Hatcher and Sollmann, White and Wilcox; Dose Book, Hoak; U. S. Dispensatory; King's Dispensatory; U. S. Pharmacopœia; same, of Homœopathy; National Formulary. Numerous other books and trade journals are to be found in the college library and are accessible to students.

ENGLISH LANGUAGE AND LITERATURE.

F. BERCHTOLD, A. M., Professor.
IDA B. CALLAHAN, B. S., Assistant Professor.
NICHOLAS TARTAR, Instructor.

English as a required study is found extending in most of our courses to, and including part of, the junior year. It is offered as an elective in two terms of the junior year, and in the senior year.

Courses S., B., F.—The course in preparatory English is designed to secure accuracy and freedom in expression. There is work in spelling, writing and simple grammatical constructions. Written exercises prepared under rules of form are constantly required, to obtain practice and secure confidence in expression. Whitney and Lockwood's English Grammar. "Seventy Lessons in Spelling." "Elementary English Composition," Scott and Denny.

It is well understood that the art of using one's native tongue correctly and forcibly is acquired for the most part through imitation and practice, and is not so much a matter of knowledge as of habit. To become familiar with good use, we must read the best literature; a student familiar with the best language of reputable writers and speakers will use good English without conscious effort. Indeed, good reading is indispensable to good speaking or writing; and rules and dictionaries are of little benefit without it.

Throughout the courses, therefore, there is required an amount of collateral reading equivalent to two books per term, or six per scholastic year. The student prepares condensive abstracts of these books, and supplements this work by selecting and memorizing from each book six short quotations embodying general truths.

The books to be read and studied in the subfreshman year are: Defoe's "Robinson Crusoe;" Bunyan's "Pilgrim's Progress;" Hughes' "Tom Brown's School Days;" Edward Everett Hale's "The Man Without a Country;" R. D. Blackmore's "Lorna Doone;" G. W. Cable's "The Cavalier."

Courses I, II, III.—*Composition and Rhetoric.*—Freshman year; first, second and third terms. Review of English grammar; review of punctuation. Daily practice in spelling. Description; narration. Collection of material for a theme. The study of words, the sentence, the paragraph. Figures of speech. The burden of these courses is description and narration. Extracts from classic literature are read and analyzed in class. Written reports are handed in, giving distinctive features in the description or method of movement in the narration. Short descriptions and narrations are written on demand in the class under limit. There are also constant recitations and exercises under grammatical rules and constructions to secure order and accuracy. The work, here as well as in all other courses in English, is done with a view to the increase of the student's vocabulary, and to develop ease and exactness of expression in his compositions. Lockwood and Emerson's "Composition and Rhetoric." Collateral reading. Books to be read and studied in the freshman year:

"The Sketch Book," Washington Irving.
"Sir Roger De Coverley," Joseph Addison.
"Silas Marner," George Eliot.
"The Merchant of Venice," William Shakespeare.

Courses IV, V.—*Rhetoric.*—Sophomore year; first and second terms. This course is carried on co-ordinately with

Genung's Rhetoric. It emphasizes Criticism, Exposition and Argument.

A number of formal papers are required during the year. The subjects are assigned and the methods follow principles laid down by Genung, and Lockwood. Much attention is given to definition of terms and to making clear expositions of ideas contained in paper.

By way of review many short exercises are also written under the simple fundamentals of composition and in study of sentence and paragraph structure. Collateral reading.

Course VI.—*English Literature.*—Sophomore year; third term. The long course of English literature necessitates the division of it into a number of periods marked by the presence of new and weighty influences. In each period there are a few writers that stand, by reason of their ability and enduring work, in positions of recognized preeminence. We aim to extend the study of the works of such writers —our classic authors—sufficiently far to include considerable fulness of biographical and critical detail.

Formative Period.—Chaucer, "Canterbury Tales:" Prologue and Knight's Tale.

First Creative Period.—Spencer, "Faery Queene." Cantos I and II. Bacon, Essays. Shakespeare, "Merchant of Venice." "King Lear," "Henry V." Collateral reading.

Courses VII and VIII.—*English Literature.*—Junior year; first and second terms. Civil War Period: Of Milton's minor poems: "L'Allegro" and "Il Penseroso." The Restoration: Dryden, selections. Queen Anne Period: Addison. Pope, selections. Age of Johnson: Burns, selections. Goldsmith, "The Deserted Village." The Nineteenth Century: Scott, Byron, Wordsworth, Tennyson. Selections from each. Collateral reading.

Courses IX and X.—*American Literature.*—Junior year; third term, and senior year, first term. A study of the leading periods and principal writers of American literature, with particular emphasis of what is usually termed the First National Period, representing such authors as Irving, Cooper, Bryant, Poe, Emerson, Hawthorne, Longfellow, Lowell, Whittier and Holmes. Collateral reading as in other courses in English.

Courses XI and XII.—*Elective Courses in English Literature.*—Senior year; second and third terms. A critical study of four or five representative plays of Shakespeare and selections from Wordsworth, Tennyson and Browning. Papers on assigned topics and reports upon collateral reading are required throughout the courses.

MATHEMATICS AND ENGINEERING.

GORDON V. SKELTON, C. E., Professor.
CHARLES L. JOHNSON, B. S., Assistant Professor.
NICHOLAS TARTAR, Instructor.

The course in Mathematics includes such of its branches as the distinctive aims of this institution require, and conforms itself, in general, to that in use in the most successful agricultural colleges.

That the study may to the fullest extent strengthen and discipline the mind for connected, logical thought, thoroughness and accuracy are insisted upon at all times. In the class-room all principles and demonstrations must be presented in an orderly and logical manner. The constant aim is to cultivate the powers of insight, judgment, and originality.

Course I—*Algebra.*—Freshman year; first term. From quadratic equations on. This course is open to students who have completed the sub-freshman work and to new students who can satisfy the department that they are prepared for the work. A review of about ten days will be devoted to the topics that precede quadratic equations. Five hours a week.

Course II—*University Algebra.*—Sophomore year; second term. From ratio and proportion to theory of numbers. This course is open to all students who have successfully passed course I. Five hours a week.

Course III—*University Algebra.*—Sophomore year; third term. Form the theory of numbers on. This course is open

to students who have had courses I and II or their equivalent. Five hours a week.

Course IV—*Plane Geometry*—Freshman year; second term. This course includes all that is found in the first four books of plane geometry in any standard text, as Wentworth's. Special emphasis is laid upon definitions and principles. Original demonstrations are given and much time is devoted to "original" theorems and problems and at all times proofs and demonstrations are freely criticised and discussed in the class-room. Five hours a week.

Course V—*Plane, Solid and Spherical Geometry.*—Freshman year; third term. This course includes book V of plane geometry and all of solid and spherical geometry. Students must have had course IV before taking this. Five hours a week.

Course VI—*Trigonometry.*—Sophomore year; first term. Students must have had courses I, IV and V before taking this. Only enough time is given to spherical trigonometry to enable the student to solve the spherical triangle. Much time is devoted to practical triangulation and measurements. The department is supplied with all the necessary instruments which the students use under the direction of the instructor. Five hours a week.

Course VII—*Plane Analytical Geometry.*—Junior year; first term. This work is required of all students taking the mechanical and electrical engineering courses. The work embraces the subjects treated in Ashton's Analytic Geometry. Five hours a week.

Course VIII—*Differential Calculus.*—Junior year; second term. This course is required of the same students as is course VII. Among the topics considered are differentiation and applications, evaluation of indeterminate forms, ex-

pansion of functions, Taylor's and Maclaurin's theorems, maxima and minima, points of inflection, curvature, change of independent variable, functions of two or more variables, asymptotes, curve tracing, etc. Five hours a week.

Course IX—*Integral Calculus.*—Junior year; third term. Among the topics considered are direct integration, definite integrals and applications, integration of rational fractions, integration by rationalization, integration by parts, integration of trigonometric forms, etc.; applications to finding the lengths and areas of curves, surfaces and volumes of solids of revolution, etc.; double and triple integration and applications. In this course, as in course VIII, great stress is laid upon practical applications, and a large number of practical problems are solved. Five hours a week.

Course X—*Surveying.*—Sophomore, Junior and Senior years; third term. The greater part of the time is spent by the student in the field with the various instruments. He is required to make surveys from descriptions given him as well as to write descriptions from surveys made by himself. In all cases notes must be carefully kept and worked up in the office.

The engineering department is equipped with the necessary instruments, including a railroad compass, two transits with solar attachments, plane-table, Y level, hand-level, rods, chains, tapes, etc.

Course XI.—*Astronomy.*—Senior year; third term. That this most elevating and refining subject may be open to a greater number of students, it will be confined to descriptive astronomy and may be taken by students who have completed courses I to V, inclusive. Much time will be devoted to uranography. Five hours a week.

Course XII.—*Agricultural Engineering*.—Senior year; third term. This course is open to students who have completed course X. Under this head will be given instruction in road location and construction, including consideration of various road materials; designing of highway bridges; inspection of existing structures; designing, locating and constructing agricultural drainage systems; laying out farm buildings, etc. Instruction given in the class-room will be applied wherever possible. Five hours a week.

Course XIII.—*Mine Surveying*.—Junior year; first term. The instruments and their adjustments, form of field notes, maps and their construction, methods of connecting underground surveys with the surface, methods of traversing underground, etc., will be considered. This work must be preceded by course X. Six hours a week.

Course XIV.—*Tunneling and Leveling*.—Junior year; second term. The various problems of alignment, grade, and constructive details of tunneling and underground work will be considered. Much time will be devoted to the survey location and construction of hydraulic works. Five hours a week.

Course XV.—*Mining Engineering*.—Senior year; third term. The subjects treated embrace preparatory and exploratory work, methods of mining, hoisting machinery, hoisting operations and conveyances, steam, water and electric power, underground traffic; pumping, ventilation, illumination, etc. Five hours a week.

TEXT BOOKS.

Arithmetics—Higher Arithmetic; Wentworth.
  Commercial Arithmetic, College Edition; Sadler.
Algebra—Essentials of Algebra; Wells.
  College Algebra (Revised Edition); Wentworth.
Geometry—Plane and Solid Geometry (Revised Edition); Wentworth.
Trigonometry—Plane and Spherical Trigonometry; Ashton & Marsh.
Analytic Geometry—Plane and Solid Analytic Geometry; Ashton.
Calculus–Differential and Integral Calculus; Nichols.
Astronomy—Elementary Astronomy; Young.
Surveying—Field Manual, Engineering Instruments; Webb.
  References:—Hand Book for Surveyors; Merriman & Brooks. Land Surveying; Hodgeman.
Mining Engineering—A Manual of Mining; Ihlseng.

ZOOLOGY.

A. B. CORDLEY, M. S., Professor.
W. T. SHAW, B. Agr., M. S., Assistant.

The work in this department is designed to give the student that knowledge of biological laws which is to-day regarded as an essential part of a liberal education. It aims to create a growing interest in the study of our native birds, insects and other animals and their interrelations with one another, with native and cultivated plants and with rural life; to give a knowledge of the foundation facts of morphology and physiology on which depend many of the principles of scientific stock breeding and feeding, of veterinary science and of human physiology and hygiene; and above all from an educational standpoint, it aims to train the student's perceptive faculties, to teach him to see, to do and to reason from observed facts.

The laboratories of the department occupy six rooms on the third floor of the agricultural building. They are well supplied with necessary apparatus including compound and dissecting microscopes, camera lucidas, eyepiece and stage micrometers, an automatic microtome, dissecting sets, dry and steam sterilizers, incubators, reagent sets and numerous smaller articles, all of which are for the use of students.

For the purpose of illustration there are in addition to the general museum and the entomological collection a set of the celebrated Leuchart zoological charts, enlarged dissectable models of the human ear, eye, heart, brain and larynx and a large series of microscopic mounts.

The general museum, which occupies the main part of the fourth floor of the agricultural building, also contains a small but typical collection of mounted mammal skins; a collection of mounted skins of native birds; a collection of mounted bird skins from Alaska; a collection of more than one hundred species of eggs of native birds; a small collection of fishes and reptiles; a considerable number of marine invertebrates, including a small but beautiful collection of Philippine shells; a small but interesting collection of skulls and disarticulated and articulated skeletons; and the largest collection of Oregon insects in existence.

Course I.—*Invertebrate Zoology.*—Sophomore year; third term. A course devoted principally to the morphology, physiology and ecology of invertebrates. Particular attention is given to the study of the single celled forms since it is believed that the student can thus best gain an insight into the structure and physiological activities of the higher animals. Some of the types studied are the amœba, paramœcium, vorticella, sponge, hydra, starfish, crawfish, earthworm, mussel and grasshopper. Required in the agricultural, household science and pharmacy. Seven hours a week. Laboratory deposit, $3.00.

Course II.— *Entomology.*— Junior year; first term. A study of the structure, classification and habits of insects, with particular reference to those which are beneficial or injurious. Instruction is given in methods of collecting and mounting insects and in studying their life-histories and in the preparation and use of insecticides. Required in the agricultural, household science and literary commerce courses. Prerequisite, course I. Seven hours a week. Laboratory deposit, $1.00.

Course III.—*Vertebrate Zoology.*—Junior year; second

term. A course devoted principally to the morphology and physiology of vertebrates. A careful comparative study is made by dissections of several vertebrate types, particular attention being given to the Guinea pig as a type of the mammalia. The relation of function to structure is kept constantly in mind throughout the course which thereby becomes valuable as an introduction to the study of human physiology and veterinary science. Required in the agricultural, household science, pharmacy and literary commerce courses. Seven hours a week. Prerequisite, course I. Laboratory deposit, $3.00.

Course IV.—*Physiology.*—Junior year; third term. A course in human physiology designed for students having a knowledge of general biology and of vertebrate anatomy. The student should also possess some knowledge of chemistry and physics. Required in courses in agriculture, household science, pharmacy, business and literary commerce. Seven hours a week.

Course VI.—(*a*) *Evolution.*—Senior year; first term. A course of lectures and collateral reading on organic evolution; covering such topics as the evolution of evolution, variation, struggle for existence, heredity, etc. Prerequisites, courses I and III. Two hours a week. Elective.

(*b*) *Systematic Zoology* —A discussion of the principles of zoological classification with particular reference to species of economic importance. Prerequisites, courses I and III. Three hours a week. Elective.

(*c*) *Advanced Entomology.*—A laboratory study of some restricted group of insects, of some particular species of economic importance, or of the insects affecting some particular crop. In this course students have free access to the collections and the library and records of the experiment

station. The course extends throughout the year. Prerequisites, courses I and II. Seven hours a week. Elective.

Course VII.—(*a*) *Histology.*—Senior year; second term. A course of laboratory practice in fixing, hardening, imbedding, sectioning, staining, mounting and studying the tissues of the higher animals. Prerequisites, courses I and III. Seven hours a week. Elective.

(*b*) *Advanced Entomology.*—A continuation of course VI *c.*

Course VIII.—(*a*) *Embryology.*—Senior year; third term. Mainly a laboratory course in the study of the development of the frog and the chick, supplemented by a study of the general facts and principles of embryology. Prerequisites, courses I, III and VII *a.* Seven hours a week. Elective.

(*b*) *Advanced Entomology.*— A continuation of courses VI *c* and VII *b.* Seven hours a week. Elective.

TEXT-BOOKS AND REFERENCES.

Courses I and III.—Texts, "Animal Life," Jordan and Kellogg and "Animal Forms," Jordan and Heath. References, "Outlines of Zoology," Thompson; "Text-Book of Zoology," Parker and Haswell; "Text-Book of Comparative Anatomy," Lang; "Invertebrate Morphology," McMurrich.

Course II.—Text, "Insect Life," Comstock. References, "Manual for the Study of Insects," Comstock; "Insects Injurious to Fruits," Saunders; "Economic Entomology," Smith. Bulletins and reports of the various experiment stations and of the United States Entomologist.

Course IV,—Text, "Human Body," Martin (Fitz edition). References, "An American Text-Book of Physiology," Howell; "Practical Physiology," Sterling.

BOTANY AND FORESTRY.

EDWARD R. LAKE, M. S., Professor.

BOTANY.

The aim of the regular course in botany is to give the student such a working knowledge of plants and plant-life as will enable him to intelligently consider the various problems of vegetable life on the farm, in the garden or forest.

The student is taught to observe plants; to become familiar with them through a working association; to ascertain by actual field work and observation what plants do, and what relations they bear to each other, and to other forms of life.

The chief features of the work in this subject are field and laboratory exercises, supplemented by lectures and recitations. Text and reference books are used merely as guides, or for the purpose of furnishing suggestions to the end that the student may be the better enabled to make the field, garden, greenhouse and laboratory work the more effective.

The department has a good working equipment for the courses outlined. Individual sets, comprising dissecting and compound microscopes, laboratory glassware and other apparatus are supplied each student at a moderate rental fee. The collection of mounted and unmounted plants, especially rich in Oregon types, together with charts, models and preserved specimens furnish ample material for both the regular and special advanced work in the several courses.

Course I.—*Plant Morphology.*—Freshman year; third term. Laboratory and field exercises, together with recitations. The gross structure of our common plants is the

main topic of the term's work. In the field work particular attention is given to ecology—the plant in its relation to soil, air, water, light and the other plants that are associated with it. Incidentally germination, growth, fertilization and fructification are considered. Seven hours a week. Laboratory deposit, $1.00. Bergen, Foundations of Botany; Coulter, Plants.

Course II.—*Plant Histology.*—Sophomore year; first term. Laboratory work with the dissecting and compound microscopes. The exercises of this course cover the minute structure of the higher plants, together with a brief consideration of the lower forms of plant life. Seven hours a week. Laboratory deposit, $2.50. Coulter, Plants; Strassburger and Hillhouse, Practical Botany.

Course III.—*Plant Physiology.*—Junior year; second term. Laboratory exercises and recitations. The subject is considered with special reference to the needs of the agriculturist and horticulturist. The principal part of the discussion is upon those phases of the subject that bear directly upon our cultivated crops. Seven hours a week. Pre-requisite, course II. Laboratory deposit, $3.00. Sorauer, Physiology of Plants; McDougal, Plant Physiology.

Course IV.—*Plant Classification.*—Junior year; third term. This course is designed to meet the demands of the pharmacist for a working knowledge of plants in general. Much stress is laid upon field and laboratory work. Plant relationships, plant societies, regional types, plant products, the medicinal and poisonous species of our common plants, are some of the topics considered during the term's work. Required in the course in pharmacy. Seven hours a week. Laboratory deposit, $1.50.

Course V.—*Plant Pathology and Hygiene.*—Senior year;

first term. Laboratory and field work supplemented by lectures and recitations. The common fungous foes of the cultivated field, orchard and garden crops, together with the means of prevention and remedy are considered at length. Seven hours a week. Elective. References, Lodeman, Weed and Massee.

Course VI.—*Plant Products.*—Senior year; second term. Economic plants and their various preparations and uses. History, development, and distribution of the plants that furnish the world with its chief supply of material for food, shelter, clothing, fuel, medicine and the arts. Elective. Seven hours a week.

Course VII.—*Systematic or Cryptogamic Botany.*—Senior year; third term. The work of this course is arranged to meet the needs of those electing it. In the systematic work, the student collects and classifies a hundred or more of the local plants, giving data as regards habitat, and distribution, and prepares a synopsis of the orders considered and species collected. Some time is also devoted to a study of current botanical literature.

In the cryptogamic work, the exercises are confined chiefly to a study of the comparative morphology of the fungi, algæ and other low forms of plant life. Seven hours a week. Elective. Laboratory deposit, $2.50.

The laboratory deposits in courses I, II, III, IV, VII, and VIII are required of all students, and are made to cover possible loss and breakage of apparatus used. At the close of each term such balance as may remain, is returned to the student. All deposits are required to be made in advance.

Course VIII.—*Agrostology.*—Senior year; first term. A brief course designed to meet the needs of those students who desire to get a working knowledge of the more common forage grasses, particularly the local native and introduced species. The economic aspect of the subject so far as relating to culture and feeding-value will be considered by the agriculturist.

FORESTRY.

Course I.—*Forestry.*—Senior year; first term. Lectures, laboratory exercises and field work. The topics of the course are: Pacific coast forests; forest areas, type trees, and products; forest trees, chief characteristics, particular uses, and identification. Five hours a week. Elective.

Course II.—*Forestry.*—Senior year; second term. Lectures. Forest culture; forest management; forest protection; forest laws. Five hours a week. Elective.

Course III.—*Forestry.*—Senior year; third term. Lectures, laboratory exercises and field work. Plant diseases, especially those affecting forest trees. Fungous foes of timber. Timber preservation. Seven hours a week. Elective. Laboratory deposit, $2.50.

Course IV.—*Construction of Woods and Metals.*—Senior year; second term. A course designed to supply the student with a practical knowledge of the minute structure of the leading kinds of timber and metals used in construction. No better designs of structures for strength, elasticity, buoyancy, compactness and rigidity are offered than those devised by nature for use in plant structures. The value of metals for constructive purposes depends very largely upon fibre, molecular structure and crystallinity. A microscopic examination of these features of metals gives the student an insight into the fundamental properties of these materials. Timber and metal diseases are considered at some length. Lectures and laboratory exercises. Seven hours a week. Elective. Laboratory deposit, $2.50.

HORTICULTURE.

——— Professor.

The work in horticulture is so arranged as to give the student a working knowledge of the principles and practices of modern horticulture, especially applicable to Pacific Coast conditions and requirements.

The experiment station orchard of over two thousand fruit trees, shrubs and vines furnishes ample material for all phases of the work of the several courses.

Course I.—*Plant Propagation.*—Senior year; first term. House and field exercises in seeding, propagation by cuttings, layering, harvesting, storing and marketing. Recitations. Two and one-half, or five hours a week. Goff, Principles of Plant Culture.

Course II.—*Plant Culture.*—Senior year; second term. Lectures and recitations on orchard, garden and vineyard fruit crops, including selection of soils, planting, cultivating, pruning. Two and one-half, or five hours a week. Bailey, Principles of Fruit Growing.

Course III.—*Plant Evolution and Improvement.*— Senior year; third term. Lectures and recitations covering the various phases of evolution as bearing especially upon our cultivated plants, together with a discussion of the principles and practices of plant-breeding, and improvements by selection and cross-fertilization. Five hours a week. Bailey, Plant-Breeding; Bailey, The Survival of the Unlike.

ELOCUTION.

HELEN V. CRAWFORD, B. S., Professor.

"There is one accomplishment, in particular, which I would earnestly recommend to you, Cultivate assiduously the ability to read well. Good reading is the natural exponent and vehicle of all good things. It seems to bring dead authors to life again, and makes us sit down familiarly with the great and good of all ages."

It is the purpose of this department to train the pupils to become thoughtful, intelligent, and agreeable readers. To give them the power to extract thought from the printed page, and by systematic drill both in physical culture and voice work to give them adequate vocal expression. To instill in the minds of pupils a love for good literature, and a genuine pleasure in interpreting and rendering the same.

Courses I and II.—*Elocution.*—Freshman year; first and second terms. Analysis and rendering. Voice culture, physical culture. Two hours a week. Evolution of Expression, Vol. I., C. W. Emerson.

Course III.—*Elocution.*—Freshman year; third term. Voice culture, bodily expression, analysis and rendering. Two hours a week. Evolution of Expression, Vol. II., C. W. Emerson.

Junior year.—Rhetorical exercises will be required first term of junior year.

Courses IV, V and VI.—*Advanced Elocution.*—Senior year; first, second and third terms. Voice culture, rhythmic movements, literary analysis and rendering. Elective. Two hours a week. "Steps to Oratory," F. Townsend Southwick.

FLORICULTURE AND GARDENING.

GEORGE COOTE, Professor.

Instruction in floriculture is given to the classes in household science. Floriculture is intended to acquaint students with the habits and requirements of the many hardy plants for outside decoration and also with the propagation and management of tropical and subtropical varieties. Thus students are enabled to acquire considerable insight into the proper care of greenhouses. In order that this plan may be carried into effect, lectures supplemented by practical work in the propagation, potting and care of plants, are regularly given in the classes.

Course I.—Sophomore year; first term. Propagation of spring and summer plants for adorning the home grounds.

Course II.—Senior year; third term. Propagation of soft wooded plants, care of greenhouse, propagation and care of winter flowering plants.

Course III.—Senior year; third term. Landscape Gardening is treated as a fine art. Introductorily the arts of design in general are discussed. Then are discussed the principles, aims and methods of artistic gardening. The principles, when once understood, are applied to the embellishment of home grounds, cemeteries, parks and highways.

BACTERIOLOGY.

EMILE F. PERNOT, M. S., Professor.

Within the last decade bacteria have laid a very strong hold on the thought and imagination of the scientific world, and have come to be looked upon as playing a most important part, not only in the production of disease and in fermentation, but also in many everyday processes hitherto supposed to be dependent on very different causes.

In consequence of this, bacteriology has been raised to the dignity of a science, and its ramifications have become so numerous and widespread that many of the other sciences, and even some of the arts, have been freely pressed into the service of one or the other of its branches.

The study of bacteriology has made great strides both in the pathological and the technical branches of the subject; and just as investigations into the physiology of higher plants gave the first impetus to the establishment of agricultural experiment stations in all countries; so, in like manner, the physiology of fermentation and technical bacteriology have called into existence, within the last few years, a number of stations and laboratories for the development of those branches of industry wherein microörganisms play an important part.

This college has a well equipped bacteriological laboratory for the investigation and study of bacteriological diseases, both animal and vegetable.

The following courses of lectures and laboratory work have been added to the college curriculum as electives in the senior year.

Course I.—*Bacteriology.*—Senior year; first term. A course in the elements of bacteriology, including lectures, and laboratory practice in sterilizing, making culture media, inoculating and growing cultures, studying cultural characteristics of certain definite species of bacteria, mounting, staining and examining slides, classification.

Course II.—*Dairy Bacteriology.*—Senior year; second term. Study of the bacterial diseases of milk, bacteria in the dairy; study of bacteria in butter making and in cheese making; study of yeasts and ferments.

Course III.—*Bacteriology.*—Senior year; third term. Lectures and laboratory work in pathogenic germ diseases of stock and poultry; a study of vaccines, their manufacture and use; of the nitrifying bacteria in leguminous plants; of bacteria in the soil and the bacterial analysis of water.

Text-book used, "Essentials of Bacteriology," M. V. Ball.

REFERENCE BOOKS.

Manual of Bacteriology, Sternberg; Manual of Determinative Bacteriology, Chester; Bacteriology and Infective Diseases, Crookshank; Principles of Bacteriology, Abbott; Tratie de Bacteriologie, Mace; Pathogenic Bacteria, McFarland; Ptomains, Leucomains, Toxins and Antitoxins, Vaughan & Novy; Micro-organisms and Disease, Klein; Microbes, Ferments and Moulds, Trouessart; The Hygienic Laboratory, Kenwood; Tratie de Microbiologie, Duclaux; Pathological Histology, von Kahlden; Pathological Technique, Mallory and Wright; Clinical Diagnosis, Simon; Micro-organisms in Water, Frankland; Technical Mycology, Lafar; Bacteriology (Text and Atlas), Lehmann and Neumann; Micro-organisms and Fermentation, Jorgensen; Dairy Bacteriology, Von Freudenreich; Practical Studies in Fermentation, Hansen; Practical Bacteriology, Kanthack and Drysdale; Fungi and Fungicides, Weed; Bacteria and Their Products, Woodhead; The Methods of Bacteriological Investigation, Huppe; Agricultural Bacteriology, Conn. Publications of the Department of Agriculture.

FREEHAND DRAWING.

AMMEE LEVERETT, Instructor.

This course in drawing is designed chiefly to facilitate practical work in other departments, to teach the student to represent objects and plants as they actually are, rather than as they appear to be. Both professional men and craftsmen assert that a knowledge of drawing is invaluable, and as a means of general culture, the study of form and composition is very beneficial.

Course I.—Freshman year; first term. Drawing with charcoal and pencil from still life and casts; massed shading. Three hours a week.

Course II.—Freshman year; second term. Continuation of the first term work with the addition of models from nature. Line shading. Three hours a week.

Course III.—Freshman year; third term. Sketching from life, drawing from still life, nature, and the flat. Composition and design. During the third term students are permitted a choice of models and working mediums. Five hours a week.

VOCAL MUSIC.

FLORENCE MCDOWELL GREEN, MUS. B., Instructor.
(University of Wooster.)

Voice Culture—Based on two lessons a week.

Grade I—Vocal exercises for placing the voice. Vaccai Italian Studies. Bonaldi, Bk. I in part. One term. Course I.

Grade II—Bonaldi completed. Conconi 50 Studies. Lutgen Trill Studies, Bk. I, Sieber Elementary Exercises. Two terms. Courses, II, III.

Grade III—Lutgen, Bk. II—Studies in phrasing by all composers. Bk. I, Scales and Exercises. Nava Studies, Bk. I, op. 36 and op. 22. Three terms. Courses IV, V, VI.

Grade IV—Bordogni, Bk. I. Exercises in Bravura work and rapid scales by Lamperti. Oratorio and opera selections. Six terms. Courses VII, VIII, IX, X, XI, XII.

Pieces suited to the pupil with all studies.

Drill in part singing through 3d and 4th grades.

Three grades of the Pianoforte course are required for graduation.

Recitals, both public and private, will aid the students in obtaining mastery of themselves before an audience.

The Choral Classes—Based on three lessons a week.

First Year—History of music in relation to national history. Tone relations. The major and minor second 3d and 6th. Practical work in reading and writing intervals. Chorus from Oratorio. Glees and simple chorus work. The Chant. Courses I, II, III.

Second Year—The history of the scale. The pitch of the orchestra. Perfect 4ths and 5ths. Practice in writing intervals. Keys. Chorus and quartet work. "Joan of Arc." The "St. Paul Oratorio complete. Courses IV, V, VI.

Third Year—Musical terms and forms. The history of the German Folk Song, the English Ballad and the American Song. Lectures on Schubert, Wagner, Mozart, Beethoven. Practice with the 7th, all diminished, minor and augmented intervals. Brahm's "Vineta." Chorus from Mesiah, Elijah, The Holy City. Selections from the Operas. Courses VII, VIII, IX.

This course is designed to give those of limited time and means an intelligent understanding of the origin and development of song and instrumental music, as well as the ability to read at sight.

Graduation.—Upon completion of any course in music, the student will receive a certificate of graduation. While none of the regular college studies are required in the department of music, a broad, general education is earnestly recommended as necessary to success in the musical profession.

Tuition, in this department, is payable to the instructor and strictly in advance.

Private lessons, of one-half hour, two a week, $4.00 a month; of one hour, one a week, $3.00 a month.

Choral Class, for drill in the fundamental elements of music, one lesson a week, fifty cents a term.

College Chorus, for advanced study, one lesson a week, $1.50 a term.

Students registering in music are expected to pursue the study throughout the term. No deduction for missed lessons, except in cases of protracted illness.

Music may be obtained from the Instructor.

Piano rent, when the piano is desired, for practice, $1.00 a month for one hour a day.

PIANO COURSE.

GERARD TAILLANDIER, Professor.
(Boston and Leipsic)

Undergraduate Courses.—The work in pianoforte consists of three undergraduate courses: Elementary, Intermediate and Advanced. A post graduate course will also be offered. Each undergraduate course is divided into two grades, A and B. For graduation pupils will be required to complete satisfactorily the work through Grade B of the Advanced course, and to have been pupils for at least three consecutive terms, with two lessons weekly. In addition, they must pass examinations in Harmony, Musical History and Theory.

The following outline will indicate the scope and difficulty of the work, but other studies and pieces may be substituted as the needs of the pupils may require. All graduates must be able to give an entire recital of not less than one hour in length.

Elementary Course.—Grade A. No requirements for entrance. Kohler Method, Vol. 1; A. Schmitt, Five Finger Exercises; Easy Pieces by Behr, Lichner, Low and others; Kohler, Studies Op. 157, Op. 50.

Gaade B. Kuhlau, Sonatines; Major scales and arpeggij; Studies by Kohler and Czerny; Pieces by Koelling, Lange, Pacher, and others.

Intermediate Course.—Grade A. Major and Minor scales and arpeggij; Loschhorn, Etudes, Op. 66; Bach, Little Preludes; Mendelssohn, Op. 72; Beethoven, Variations and other pieces.

Grade B. Cramer-Bulow Studies; Bach, two part inventions; Beethoven, Sonatas, Op. 14, Op. 2; Haendel, Pieces; Kullak, Octave Studies, Book I; Bach, Fantasie in C Minor, etc.; Mendelssohn's Songs Without Words; Weber, Pieces.

Advanced Course.—Grade A. Clementi, Gradus ad parnassum; Kullak, Octave Studies, Book II; Moscheles, Etudes, Op. 70; Beethoven, Sonatas, Op. 10, 13, 31; Beethoven, Variations, Op. 34; Chopin, Preludes, Valses, Nocturnes, etc.; Bach, Preludes and Fugues; Mendelssohn, Rondo capriccioso; Schumann, Pieces.

Grade B. Chopin, Etudes, Op. 10 and 25; Bach, Fugues and Suites; Schumann, Faschingsschwank, Op. 26; Liszt, Transcriptions and Rhapsodies; Mendelssohn, Variations serieuses; Beethoven, Sonatas, Op. 26, Op. 27, Op. 53; Chopin, Scherzi and Ballades.

Post Graduate Course.—The post graduate course carries pupils on from the point reached in the Advanced Course, Grade B. The more difficult works of Bach, Beethoven, Schumann and others, including concertos, will be taken up, and the study of counterpoint and analysis becomes compulsory. To enter the post graduate course, pupils must hold diplomas from the undergraduate course of this department or from some other music school of equal requirements.

Harmony.—The course in harmony will cover two school years and will be taught in classes, twice weekly. Emery's Harmony will be used as text-book.

Counterpoint, Theory and Musical Form.—These subjects will be taught twice weekly during the winter and spring terms. Bridge's Simple Counterpoint will be used. No text-books will be required for Theory and Form.

Musical History.—Bonavia Hunt's History of Music will be found a most useful and handy book of reference for students taking this course. Instruction will be given principally in lectures upon which the students are expected to take notes. The lectures will be based on the Histories of Music by Rowbotham, Naumann, Hullah, Dr. Riemann, Dr. Nohl, Dr. Langhans, Groves Dictionary of Music and Musicians, etc., and the course will be a very comprehensive one, covering the history of music from the most ancient times to the present. Two periods weekly will be required during the entire school year.

TUITION.

Piano.—Private lessons of 30 minutes duration, $18.00 per school term, twice weekly; $12.00 per school term, once weekly. If less than a term is taken the rate will be $1.00 per lesson, twice weekly, and $1.25 per lesson, once weekly.

Arrangements for renting pianos can be made with the instructor, the charges being 25 cents per week for one hour daily practice, 50 cents for 2 hours, etc.

Harmony, Musical History, Counterpoint, Theory and Musical Form, in classes twice weekly, $6.00 per term for each study.

Diploma at graduation, $5.00. No deduction will be made for missed lessons, except in case of prolonged illness, in which case due notice will have to be given to the instructor. All tuition is payable in advance.

MILITARY SCIENCE AND TACTICS.

FIRST LIEUT. D. P. QUINLAN, 5th Cavalry, U. S. A., Professor and Commandant of Cadets.

"Whatever arguments may be drawn from particular examples, superficially viewed, a thorough examination of the subject will evince that the art of war is both comprehensive and complicated; that it demands much previous study, and that the possession of it in its most approved and perfect state is always of great moment to the security of a nation."—*Washington's last annual message.*

"In the same measure as we are prepared to enforce them, will our demands upon other nations receive consideration."—*President Theodore Roosevelt.*

The military body consists of four companies of Infantry, Band of 28 pieces, Detachments of Cavalry, Artillery, Signal, Hospital and Engineer Corps; the latter engaged in topographical surveying and sketching work, map making, etc. The formation is regimental; the drill, administration, etc., are the same as in the Regular Army.

One of the objects of this instruction is to prepare the cadet, so that upon graduation he will be thoroughly competent to hold a commission in the National Guard or volunteer army; special instruction being given to candidates to West Point Military Academy, Regular Army, Navy or Revenue Cutter service.

The greater part of the instruction is directed towards having cadets adopt a systematic rule of conduct, inculcating accurate methods in everything they undertake. This not only places cadets in the condition to receive favorably all instruction in the military department, but facilitates study in the other departments and becomes a valuable asset to a young man going out in the world in any profession.

Military drill improves the habits and manners of the student, develops him physically and gives him that military knowledge which it is desirable every citizen should possess that he may render intelligent aid to his country or state in the time of need. It cultivates a manly spirit, ready and implicit obedience, respect for authority and self-restraint—all qualities of inestimable value to a young man.

Instruction in the course is prescribed for all undergraduate male students, except married men who are excused from drill. Male students excused from active military work will be assigned some light duty by the head of the department. The instruction is both practical and theoretical.

The Cadet band, with twenty-eight instruments, is under the instruction of a competent musician as leader. Ordinarily no cadet will be assigned to the band until he is well instructed in the "school of the soldier" and the "school of the company."

The present armory contains a drill room 700x100 feet in extent, an office, and suitable rooms for storing guns and other ordnance. The State Legislature has just appropriated $15,000 for the construction of the largest drill shed and armory west of the Mississippi, 750x250 feet, with a range for gallery practice on the first floor.

Three hundred Springfield cadet rifles with equipments, two light artillery field pieces, twenty cavalry sabres, and a liberal allowance of blank and ball cartridges are furnished by the Ordnance Department, U.S.A. Other necessary equipments, apparatus, etc., for the thorough equipment of the military department is furnished by the College.

A retired sergeant of the Regular Army, as armorer, is continually in charge of all property and is responsible for its care and preservation.

It is the intention to hold an encampment for two or three days annually when suitable camp equipage can be secured.

Appointment and promotion of officers and non-commissioned officers and their relative rank in each grade is determined according to the military standing of the cadets, based upon a careful consideration of the following points: (1) Knowledge of drill and other duties as determined by the standing of the organization of which they are in command; practical application and recommendations of superior officers. (2) Zeal, soldierly bearing and aptitude for command. (3) Character. (4) Military record. (5) General standing in College.

Commissioned officers are selected from the Senior and Junior classes; non-commissioned officers from the Senior, Junior and Sophomore classes; all reductions are to the grade of private.

Officers and non-commissioned officers cannot resign their commissions except on recommendation of the Commandant, approved by the President; the reasons must be plainly stated in full and must not have been in existence at the time the commission or warrant was accepted.

Two valuable medals have been donated to the military body. They are to be awarded after competition each year to the two most efficient cadets in the department; the cadet winning one of these medals two years in succession, becomes the owner of it and is excused from further military drill during his stay at the College. Holders of the medals in the first year will be excused from all military exercises except one hour per week Tactics and one hour Military Science.

Other rewards of merit in the shape of uniforms, etc., will be competed for during the year.

Cadets are required to wear a complete uniform at all drills and other military exercises. The wearing of mixed civilian and uniform clothing is prohibited at all times. The uniform complete costs about $16.00 and is of the regulation olive drab color adopted by the United States Army and makes a very neat and serviceable suit.

Students must come prepared to deposit the price of the uniform, for which they will be measured as soon as they learn the position of a soldier.

COURSE OF INSTRUCTION.

TACTICS.

(*a*) *Practical Instruction.*

COURSE INCLUDES	AUTORIZED TEXT BOOKS.	PRESCRIBED FOR
(1) School of squad, company, battalion in close and extend. order	Infy.D.Reg.(U.S.A.)	
Ceremonies by regiment	Stewart's Handbook	Entire
Guard Manual. Entire	Man.G.Duty.	
Problems in Outpost Duty	Military Science (Wagner	Military
Convoying, Advance and Rear Guards, Patroling, Marches		Body.
Sighting P.& A. and E.D. Drills	S.A.F.Reg.(U.S.A.)	
Gallery and Range Practice		
First Aid to the Injured	See Hosp.Corps.	
(2) In addition to No. 1 School of Trooper and Troop	Cav.D.Reg	Cav'ly Detch.
Bitting, Bridling, Seats, Saddles	Carter's H.S. and B.	
Examination for age, soundness, etc.		
Packing, etc.	The Cavalry Horse and his Pack (Boniface).	
(3) In addition to No. 1 School of Cannoneering, Platoon dismounted, Mechanism and Nomenclature of 3.2 inch Field Piece and use of Artillery in field	Light Art.D.Reg (U.S.A.)	Art'ly Detch.
(4) In addition to such portions of No. 1 as they are physically able to take	Gidding's Manual	Signal Corps.
Flag, Torch, Whistle, Helio Signaling.		
(5) In addition to No. 1, Topographical Surveying, Sketching, Map-making and Map-reading	Root's Topography	Engineer Corps
Construction of shelter trenches, bridges, pontoons, etc	Beach's Field Eng.	
(6) In addition to such portions of No. 1 as they are not excused from taking. First aid to the injured and litter drill. Members will give instruction in the above to the entire military body	Man.Hosp.Corps (U.S.A.) Johnson & Johnson's Manual.	Hosp. Corps.

(7) In addition to such portions of No. 1 as they are not excused from taking. Daily practice when not in actual attendance at ceremonies	Infantry D. Reg	Band.
(8) Military correspondence, roster, reports, returns, requisitions, enlistment and discharge papers, descriptive lists	U.S.A. Regulations	Seniors.

(*b*) *Theoretical Instruction.*

(One hour per week.)

(1) Recitations in everything to be taken practically	As prescribed in practical course.	Entire Mil. body.
Articles of War, Military Hygiene	Woodhull's Mil. Hygiene.	
(2) Lectures on Organization Administration of U.S.A. & N..G in peace and war.	Mil. Sci. Wagner	Juniors
Customs of Service, International, constitutional and military law	Winthrop's Mil. Law.	
Federal aid in domestic disturbances, etc. Notes to be taken and class subsequently examined.	Inter. Law, Cooley's Con. Law Federal aid in domestic disturbances. (U.S. Publication.)	
(3) Preparation of paper on military subjects		Seniors.

Proficiency in the Military Department on subjects instructed in is necessary to secure a diploma.

CLASS OF 1905.

Personal Mention.

Names sent to the War Department, Washington, D. C., to be inserted in Army Register; also recommended to the Adjutant General of the State of Oregon as eligible to perform duties of staff officers or company commanders in National Guard.

RANK.	NAME.	RESIDENCE.
Colonel	Henry Clay Darby	Silverton, Marion Co.
Lieut. Colonel	Theodore Alexander Garrow	Oregon City, Clackamas Co.
Major	John Will Carlson	Portland, Multnomah Co.

Recommended to War Department as showing special aptitude in military studies; also to the Adjutant General, State of Oregon as eligible to perform duties of company commander in National Guard.

RANK.	NAME.	RESIDENCE.
Major	Percival Lysander Adams	Hood River, Wasco Co.
Captain	Fred Charles Stimson	Amity, Yamhill, Co.
"	LeRoy Harlan	Republican, Neb.
"	Ray Lewis Stout	Mehama, Marion Co.
"	Floyd B. Davis	Newport, Lincoln Co.
"	Ernest Eddy	King's Valley, Benton Co.
"	Otto Adam Weber	Corvallis, Benton Co.
"	Ralph Curtis Shepard	Salem, Marion Co.
"	Karl Steiwer	Jefferson, Marion Co.
"	John R. McCormick	Lebanon, Linn Co.

Names sent to Adjutant General State of Oregon as showing marked proficiency in military studies and recommended as eligible to hold commission as company officer in National Guard.

RANK.	NAME.	RESIDENCE.
1st Lieutenant	John Smith Tannock	Hillsboro, Washington, Co.
1st Lieutenant	Floyd Alexander Williams	Airlie, Polk Co.
2nd Lieutenant	Bert Trew Jordan	Albany, Linn Co.
"	Merrill B. Moores.,	Oregon City, Clackamas Co.
"	Bert Pilkington	Oakland, Douglas Co.
"	William G. Abraham	Albany, Linn Co.
"	Charles E. McLean	Vancouver, Washington State
"	Earl Rinehart	The Dalles, Wasco Co.
"	Mark McAllister	Pratum, Marion Co.
"	Albert Burton Bower,	Silverton, Marion Co.
"	Delbert W. Proebstel	Portland, Multnomah Co.
"	Francis Marion Stokes	Portland, Multnomah, Co.
"	Guy Sherwood Moore	Albany, Linn Co.
Sergeant	Joseph C. Henkle	Corvallis, Benton Co.
"	Harry Lee Fryer	Carlton, Yamhill Co.
"	William H. Beaty	Balston, Polk Co.
"	George A. Anderson	Harrisburg, Linn Co.

ROSTER—'05-'06.

Sam. L. Damon, Lieutenant Colonel.
Fred. C. Stimson, Major, Inspector.
H. B. Auld, Captain and Adjutant. D. V. Walker, Captain and Quartermaster.
Geo. H. Root, Captain and Commissary.
P. L. Rose, Sergeant Major. E. P. Rawson, Quartermaster Sergeant.
R. I. Thompson, Commissary Sergeant.
G. C. Cate, F. L. Fowells, Color Sergeants.

SPECIAL INSTRUCTORS.

H. C. Getz, Major, instructor in topograpical surveying and sketching.
F. M. Roth, Captain, instructor in field engineering.
G. J. Dodson, Captain, instructor in small arms firing regulations.
M. Hinrichs, Captain, instructor in small arms firing regulations.
M. B. Belden, Captain, instructor in guard duty.

BAND.

E. D. Wetmore, First Lieutenant, leader. S. L. Eddy, Drum Major.

FIRST BATTALION.

P. Gearhart, Major.
C. S. Benson, First Lieut. and Adjutant. L. A. Bundy, Second Lieut. Q. M. & Com.
C. G. Brownell, Sergt. Major.

Co.	*Captains.*	*1st Lieut's.*	*2d Lieut's.*	*1st Sergt's.*	*Q. M. Sergt's.*
"A"	R. C. Jackson,	W. E. Wade,	C. C. Currin,	C. E. Bowen,	E. S. Thayer
"B"	R. Esson,	G. Lingaas,	H. B. Carter,	C. S Currin,	A. R. Barnett.
"B"	R. M. Walker,	G. von der Hellen,	A. E. Burns,	F. R. Miller,	E. R. Green.
"D"	D. C. Little,	A. K. Berman,	J. L. Ringo,	M. F. Wilkes	H. Rumbaugh

SECOND BATTALION.

E. V. Hawley, Major.
R. Groves, 1st Lieut. and Adjutant. K. L. Cooper, 2d Lieut., Q. M. and Com.
Waldo Finn, Sergeant Major.

"E" (Cav.)	A. P. Tedrow,	C. M. Stebinger,	C. Fullerton,	D. Thayer,	M. V. Forrest.
"F" (Art.)	A. L. Bradley,	E. L. Sweek,	L. Schoel,	M. Weatherford,	E. Harding.
"G" (Sig. Corps.)	C. V. Swann,	W. A. Schoel,	A. C. VanCleve,	S. Hammel,	L. Stratton.
"H" (Hosp. Corps.)	G. A. Cathey,	H. Brandon,	W. E. Forsythe,	A. Belknap,	A. J. Rich.

PHYSICAL CULTURE.

WILL ORIAN TRINE, Physical Director.

The aim of this department is to secure and maintain perfect health. To this end we strive to develop a symmetrical and graceful body. No pretense is made at developing actors, and no one is required to do what is known as "heavy work." However, there are always classes and special teams in various lines of artistic gymnastics, and those enjoying the work are welcome.

The chief aim is to benefit the weak and to guard against developing any tendencies to weakness or disease that so often exist. To this end every man entering the department is given a rigid physical examination. In these examinations the exact condition of the man is noted and special exercises are prescribed to meet his particular case. Records are kept making it possible by later examinations to note results of work and progress made.

The work is largely selected from the German and Swedish systems of gymnastics and "The Grading of Gymnastic Exercises" by George M. Martin. A progressive course is followed. The class work which is carefully planned aims primarily to cure the common physical defects, such as narrow chest, stooping shoulders and weakened muscular system.

The gymnasium is well equipped for thorough work. The basement is provided with lockers and bath rooms for both men and women. The main floor is equipped with horizontal bar, parallel bars, buck, horse, rings, ladders, trapeze, dumb-bells, clubs, wands and other apparatus. South of the gymnasium is a large athletic field, with a quarter-mile track, grandstand, 100-yard straight-away track, tennis courts and foot-ball grounds.

MINES AND MINING.

JOHN FULTON, B. S., Mineralogy and Assaying,

Instruction is given in this department to familiarize the student with the most approved methods of successfully carrying on mining operations as practised on the Pacific coast. The student is taught the uses of the various surveying instruments and is given ample opportunity for practical application in both field and mine surveying.

For courses in mine surveying, leveling, tunneling, etc., see page 100.

The student is also taught how to care for and handle such machinery as boilers, engines, motors, pumps, hoists, etc., by practical study and use in the machine shops. Abundant facilities for such instruction are offered here.

For description of equipment of the mechanical department see pages 75 and 76.

The courses in chemistry are practically the same as those for the mechanical student, excepting that an additional term in qualitative analysis is required of the mining student.

The courses in mineralogy are largely laboratory practice, and consist to a great extent of blowpipe-analysis of most of the metal-bearing rocks. The student is also taught how to recognize specimens in the field by aid of simple instruments, such as the pocket knife, lens, and small acid bottle.

The study of economic geology is also fully considered in this department, and much assistance may be derived by study of specimens in the mineral cabinet.

The courses in assaying cover analysis of gold, silver, mercury and lead ores, by the fire or dry assay, and the estimation of copper, iron, and zinc, by the volumetric or wet assay.

Instruction in rapid estimations of various metals is also given when time permits.

The equipment of the assay laboratory consists of one simplex ore crusher, one wall cupel machine, one Becker button balance, one Spohrhaese button balance, two pulp scales, one bucking board, two crucible furnaces, two muffle furnaces, one combination muffle and crucible furnace. All above furnaces are heated by Hoskins' gasoline burners, supplied by pressure from one fifteen-gallon pressure tank. In addition, there are furnaces for coal or coke, both stationary and movable, anvils, moulds, tongs, scorifier-crucible and cupel-hand cupel machines, etc.

Nothing has been omitted in the equipment of a first class assay laboratory, so that students completing the full course will have no difficulty in taking up the duties usually incumbent upon the assayer.

There have been added during the past year, a Fuess reflecting goniometer, a quantitative balance, two sets of crystal models and an extensive mineral collection.

Texts.—Scott's Geology, Furman's Assaying, Eakle's Physical Mineralogy, Moses & Parsons Blowpipe Analysis. References.—Kemp's Ore Deposits, Dana's Geology, Leconte-Geikie, etc.

LITERARY COMMERCE COURSE.

T. H. CRAWFORD, A. M., Professor.
J. B. HORNER, A. M., Penmanship.
HELEN L. HOLGATE, B. H. E., Stenography and Typewriting.

This course leads to the degree of Bachelor of Science. The requirements for entrance to this course are the same as those for entrance to any one of the Freshman years in any of the other courses. See page 25.

One of the most attractive features of this course is the prominence given to English. Every term in the entire four years—with but two exceptions—presents the subject of English, making this emphatically a literary course.

Along commercial lines, the subjects of book-keeping, stenography, typewriting and commercial arithmetic are made prominent in the freshman, sophomore and junior years and in the junior and senior years commercial law, civics and economics are studied.

The subject of penmanship is taken up in the third term of the freshman year and made prominent every term until the close of the junior year.

In mathematics—in addition to commercial arithmetic—there are algebra and geometry, All the mathematics come in the first two years.

During the sophomore and junior years either Latin or German is studied continuously. In these years will also be found the subjects of general and modern history, aesthetics, psychology, and astronomy.

A fee of $1.00 per month during term time will be charged for the use of the typewriting machines.

THE EXPERIMENT STATION.

The station bears an important relation to the college, as the scientific investigations conducted at the station strongly support the instruction given in the class-room. Aside from the original investigations of an economic significance to agriculture, the work of the station affords daily object lessons in good modern farming.

About one hundred acres of the college farm are devoted to scientific and experimental farming. Animal husbandry is an important feature of station work. For this branch of the work Shorthorn and Jersey cattle, Cotswold and Shropshire sheep, Berkshire and Chester White swine are maintained. Among these, animals can be found of rare individual excellence, thus offering the student in agriculture an opportunity to study the highest types of the respective breeds.

Extensive field trials are made in the growing of many varieties of cereals, grasses and forage plants, which are utilized in various feeding experiments conducted for the purpose of determining their value as stock foods. This work embraces the study of plant environment and the correlated subject of animal nutrition, thus supporting in a practical manner the science of agriculture as taught in the college.

Dairying is also a prominent feature of the station work. For this purpose a herd of typical dairy cows and a well equipped creamery are maintained. Many problems of vital interest to practical dairymen are constantly being worked out along the lines of rations for cows and methods for handling the herd. The student himself frequently assists in the work and thus obtains tangible evidence of the practical utility of the sciences in dairy husbandry.

The horticultural work of the station affords the student an admirable opportunity for comparing the work of the class room with the practices of the field. Plant breeding, cross pollination of fruits, as well as modern methods of planting, pruning, grafting, spraying and cultivation are all brought immediately under the observation of the student, thus affording him an excellent opportunity to become thoroughly conversant with the science and practice of horticulture.

THE SHORT COURSE IN AGRICULTURE.

To give Oregon farmers who are unable to pursue a four-year course in the Agricultural College, a share in the advantages of higher education, the College has for many years conducted Farmers' Institutes in various parts of the State. But the Institute, while it has its place, has developed another movement of perhaps greater importance, that of holding a more extended Institute, known as the Short Course in Agriculture, Horticulture and Dairying.

The main conception of such schools is, that they are places where people from the farm and orchard—practical farmers and fruit growers—can understandingly study the application of some of the fundamental laws of their occupation. In announcing the Short Course we feel that we can make it thoroughly practical for any intelligent agriculturist, and that we can make scientific agriculture and horticulture both educational and useful. Such a course covers a field which on account of lack of time and apparatus for illustration cannot be undertaken in the regular Farmers' Institutes.

The course consists of a series of popular lectures along lines suited to aid horticulturists, dairymen and others engaged in agricultural pursuits in developing the great natural resources of our state. The lectures are all supplemented by laboratory work under the supervision of experts who strive to make the course thoroughly practical by adapting the work as far as possible to the needs of each individual. The primary study is of things rather than books, and there is always kept in mind the practical side of the matter under discussion. Little time is spent in purely theoretical discussion.

There will be no educational test. No special preparation is necessary as the instruction will be given by lectures and practical work. It is the aim of this course to give to the student the largest possible amount of practical information regarding the various phases of agriculture and horticulture.

An important source of information for those attending this course is the Station and College library where the best books on agriculture, horticulture, and dairying are found. The bulletins of the experiment stations of all the states in the Union are on file at the College and will be at the command of anyone wanting them. These bulletins are invaluable as being about the only source from which one can get information as to the present status of, and the progress that is being made in agricultural and horticultural matters.

An effort will be made to direct the reading along particular lines in such a way that the reader will get in touch with the progressive work that is being done in his particular occupation.

The first lecture of the series will be given at 9 a. m., January 8, 1906, and the course will close on Friday, January 19, 1906.

SPECIAL COURSE IN DAIRYING.

The establishment of the Dairy department of the Oregon Agricultural College on the first floor in the new Agricultural

Hall makes it possible for the institution to give a special course in butter and cheese making and subjects closely related thereto. The management of the institution will offer such a course of eight weeks duration, beginning on the Monday following the close of the short course in agriculture.

The course is designed to familiarize students with the modern forms of dairy apparatus, and to teach the underlying principles of the production, care, and manufacture of milk into butter and cheese. Both the *how* and the *why* will be the aim of the instructors, and it is the intention that the ideas set forth will be applicable to the farm dairy as well as the larger creamery or cheese factory.

ADMISSION.—The dairy course is open to all persons, both male and female, who are at least eighteen years of age and who have a common school education. No entrance examinations will be required, but it is expected that those seeking admission will be able to intelligently understand lectures, take notes, and perform a small amount of textbook work.

EQUIPMENT.—More than one-half of the floor space on the first floor of Agricultural Hall is devoted to the dairy department. At the left of the main entrance is the dairy instructor's office, and to the right are located the dairy rooms proper. The main work room, located in the northwest corner, is 24 x 44 feet with cement floor sloping from all directions toward the center where a bell trap connects with the sewer system of the building. This room is equipped with five of the modern styles of cream separators, operated by either steam or hand power. There are also combined churns and workers, box churns, table workers, receiving and ripening vats, and the necessary apparatus for the manufacture of full cream Cheddar cheese.

Adjoining the main work room are lockers for students' use, a well lighted boiler room 16 x 18 and a wood and store room.

In the northeast corner of the building is the Dairy Laboratory 22 x 40 feet which will be equipped with all the modern devices for testing milk and its products, such as hand and turbine Babcock tests, curd tests, cream scales and automatic acid measures.

Two commodious cheese-curing rooms, 10 x 16 and 12 x 16 feet, complete the quarters of the dairy department.

The college library located in the Administration Building will be open to students of the dairy course. Here access may be had to the leading farm and dairy papers of the United States as well as some foreign publications. Full sets of the bulletins of the various experiment stations and the U. S. Department of Agriculture are on the library shelves, also many valuable books pertaining to dairy matters.

CHARACTER OF WORK.—Students will meet for work six days per week. The forenoon of each day will be devoted to practical work in the dairy rooms. Two days per week will be devoted to cream separation and butter-making, two days to cheese-making, and two will be spent in the dairy laboratory. In the afternoons of all days except those devoted to cheese-making, lectures and recitations will occupy two or three hours. The object of this class-room work is to give the student a better knowledge of the underlying principles upon which the practical dairy operations are based. An outline of the work is given below:

LECTURE WORK.—*Soil Chemistry and Physics.*—This includes a study of the origin and composition of soils and of the plant food contained in them. Such questions as the conservation of moisture; conditions affecting the water-holding capacity of soils; temperature of soils, etc., discussed and illustrated by experimental work. In this connection the composition and use of fertilizers is considered, including the discussion of both farm manures and commercial fertilizers, their composition, and when and how to use them.

Feeds and Feeding.—This includes the study of forage plants, growth, adaptability, chemical composition and their relationship to successful dairy husbandry—the study of the fundamental principles of animal nutrition, including digestion, assimilation—the composition and feeding value of the different grains and commercial feed stuffs and how they should be fed for best results in milk production.

Milk and Its Products.- -For this work a text-book, "Milk and its Products," by H. H. Wing, is used, supplemented by lectures. Some of the topics covered by the text are: secretion and composition of milk; pasteurization; market milk; the ripening of cream; principles of the Babcock Test; milk for cheese-making; varieties of cheese, etc. Creamery accounts and herd records will also be taken up in this connection.

Dairy Bacteriology.—Lectures and laboratory demonstrations are given relative to the various forms of bacteria which are of interest to the dairyman.

Breeds and Breeding.—A necessary requirement of a successful dairyman is the ability to harmonize breed and environment. Hence this work embraces the study of the origin and characteristics of the leading dairy breeds, adaptability, form as related to function and a general discussion of types.

The College maintains a typical herd of dairy animals comprising representatives of three popular breeds, thus affording the student an excellent opportunity to make comparisons. Stock judging both by the card system and by comparison is a feature of this work.

Chemistry of Dairy Products.—In these lectures the comparison of dairy products is dealt with more in detail than it is possible for the lecturer on dairying to do. In order to bring out and emphasize certain points, these lectures are accompanied by experiments and the examination of dairy products.

Veterinary Science.—This will consist of a general discussion of the causes of the common diseases of cattle, their treatment and best means of prevention. It will also include discussions relative to the usual management and care of the herd and individual members thereof, in health or disease.

Steam Engine.—Discussions and practical work relative to the structure, care and operation of steam engines and boilers, with special reference to the principles involved are held. Four boilers and a like number of engines are available for illustration in this work.

LABORATORY.—*Practical Dairy Work.*—This work consists of extended practice in the use of the Babcock test in determining the percentage of butter fat contained in milk, skim milk, buttermilk, cream, whey, butter, and cheese. Particular attention is given to the use of scales in connection with cream testing. The use of acid tests for determining the ripeness of the cream is considered. Daily practice in the application of results obtained is afforded.

Butter-Making.—Five latest style cream separators furnish practice in the removal of cream from milk. A combination churn, a trunk churn, and a table worker will illustrate the operations of churning and working butter.

One and two-pound molds, and cutting boxes illustrate the methods of finishing. All work in this line is performed by students under the direction of the instructors.

Cheese-Making.—The manufacture of full cream Cheddar cheese is considered. Attention is given to the small sizes known as Young Americas. Some partly skimmed milk cheese is made to illustrate the effect of the removal of a portion of the cream. The use of various rennet tests is taught, also the hot iron test. Small vats are used in this work in order that each student may have an opportunity to carry the work through from start to finish.

EXPENSES.

Fees.—There will be no fees except a breakage deposit of $3.00, a portion of which will be returned at the close of the term. This deposit is mainly to cover breakage of glassware in the laboratory, and in case of no breakage the fee will all be returned, except a small fee for material.

Board and Lodging is obtainable in Corvallis at $3.00 to $4.00 per week. A list of places may be seen at the office of the Dairy Instructor.

Clothing.—Students are ordinarily required to wear white suits while at work. These can be purchased in the Corvallis stores at $1.00 to $1.50 per suit, consisting of cap, trousers and jacket. A pair of colored overalls will also be found useful at times.

Books.—This item will not exceed $2.00. The only regular text-book will be "Milk and Its Products," by Wing. Some note books will be needed by those who wish to make the most of the course. Anything required in this line can be obtained in Corvallis.

Since only a limited number of students can be accommodated in this course, application for admission should be made to the department of dairying at least two weeks preceding the opening.

The course will open on Monday, January 22d, immediately following the close of the Short Course in Agriculture.

For further particulars regarding the Special Dairy Course address F. L. Kent, Corvallis, Oregon.

FARMERS' INSTITUTES.

One of the most useful methods of diffusing agricultural education is the farmers' institute. These institutes are especially helpful both to the farmer and the experiment worker. The former secures scientific information upon topics of immediate interest to him and is instructed in its practical application to the farm; while the latter is brought to realize more vividly the needs and perplexities of the farmer. It is gratifying to note the growing demand for more of these institutes, and while the station is ever ready to accede to these demands, it is, however, becoming annually more difficult on the part of the station officials to fulfill these obligations, owing to the constant increase in the work of the station.

LIBRARY.

RICHARD JEFFREY NICHOLS, B. S., Librarian.

The library occupies a large, well-lighted room on the first floor of the administration building, and contains nearly 4000 bound volumes of standard works on history, literature, arts, sciences, general subjects and fiction; as many more bound volumes of U. S. government publications and about 10,000 pamphlets and bulletins. Care has been exercised in the selection of books in order that each department may have proper works of reference at the disposal of the student.

A card catalogue is used and the books are indexed according to subject by the decimal system, and alphabetically according to title and author, so that the use of the library is greatly facilitated and its resources upon any subject easily ascertained.

The library receives the leading literary and scientific magazines and journals, all of which are kept on file.

The library is open for the issuing of books every school-day from 8 a. m. to 5 p. m., and during that time the librarian is in constant attendance. Books, excepting cyclopedias and works of general reference, may be drawn out by students for a period not exceeding two weeks.

LIST OF STUDENTS.

GRADUATES.

NAME.	POSTOFFICE.	COUNTY.
Edward Forrest Green, A. M., (Wooster University).	Hood River,	Wasco.
Grace Gatch, A. B., (University of Washington).	Seattle,	Washington State.
Georgia Eleanor Hartless, B. S.,	Corvallis,	Benton.
Albert Louis Henning, Ph. G., (University of Wisconsin).	Pendleton,	Umatilla.
Ethel Ellenor Linville, B. S.,	Corvallis,	Benton.
Girindra Mukerji, A. M., (Calcutta University).	Calcutta,	India.
Esther Madaline Purdy, B. S.,	Corvallis,	Benton.
Juanita Rosendorf, B. S.,	Independence,	Polk.
Mary Elizabeth Sutherland, B. S.,	Shedd,	Linn.
Mahesh Charan Sinha, A. B., (Tallahobad University).	Lucknow,	India.
Mabel Withycombe, B. S.,	Hillsboro,	Washington.

SENIORS.

Names.	Course.	Postoffice.	County.
William Gustave Abraham,	Elec.,	Albany,	Linn.
Percival Lysander Adams,	Elec.,	Hood River,	Wasco.
George Anthon Anderson,	Elec.,	Harrisburg,	Linn.
William Henry Beaty,	Elec.,	Ballston,	Polk.
Albert Berton Bower,	Elec.,	Silverton,	Marion.
John Will Carlson,	Elec.,	Portland,	Multnomah.
Mary Cecil Danneman,	L. C.,	Clem,	Gilliam.
Henry Clay Darby,	Phar.,	Silverton,	Marion.
Floyd Bushnell Davis,	Mech.,	Newport,	Lincoln.
Earnest Eddy,	L. C.,	Hoskins,	Benton.
Lura Lovene Flett,	H. S.,	Fisher,	Lincoln.
Harry Lee Fryer,	Elec.,	Carlton,	Yamhill.
Theodore Alexander Garrow	Mech.,	Gazelle, Cal.	
Leroy Harlan,	L. C.,	Republican City, Neb.	
Maggie Maud Hays,	H. S.,	Tangent,	Linn.
Joseph Clare Henkle,	Elec.,	Corvallis,	Benton.
Georgia Ellen Herbert,	H. S.,	Corvallis,	Benton.
Violet Philendia Herbert,	H. S.,	Corvallis,	Benton.
Fred Austin Hills,	Agri.,	Jasper,	Lane.
Alice Jones,	H. S.,	Corvallis,	Benton.

Mabelle Bee Keady,	H. S.,	Corvallis,	Benton.
Charles Edward MacLean,	Min.,	Forest Hill, Cal.	
John Roderick McCormick,	Mech.,	Lebanon,	Linn.
Mark Dow McCallister,	Mech.,	Pratum,	Marion.
Merrill Bruce Moores,	Min.,	Salem,	Marion.
Guy Sherwood Moore,	Elec.,	Albany,	Linn.
Edna Marie Osburn,	H. S.,	Corvallis,	Benton.
Bert Pilkington,	Phar.,	Oakland,	Douglas.
Delbert Waldorf Proebstel,	Elec.,	Portland,	Multnomah.
Hazel Blanche Raber,	L. C.,	Corvallis,	Benton.
Harvey Earle Rinehart,	Agri.,	The Dalles,	Wasco.
Lucile Jean Roberts,	H. S.,	Hood River,	Wasco.
Maude Ethel Roberts,	H. S.,	Medford,	Jackson.
Ralph Curtis Shepard,	Agri.,	Salem,	Marion.
Otto Gerald Simpson,	Agri.,	Suver,	Polk.
Nellie Vernon Skelton,	H. S.,	Seattle, Wash.	
Edna Louise Smith,	H. S.,	Latourell,	Multnomah.
Karl Steiwer,	Agri.,	Jefferson,	Marion.
Frederick Charles Stimson,	Phar.,	Amity,	Yamhill.
Francis Marion Stokes,	Min.,	Portland,	Multnomah.
Ray Lewis Stout,	Mech.,	Mehama,	Marion.
John Smith Tannock,	Elec.,	Hillsboro,	Washington.
Lena Belle Tartar,	H. S.,	Airlie,	Polk.
Leone Charlotte Weber,	Phar.,	Corvallis,	Benton.
Otto Adam Weber,	Phar.,	Corvallis,	Benton.
Ira Parker Whitney,	Agri.,	Chitwood,	Lincoln.
Alice Minerva Wicklund,	L. C.,	Monroe, Utah.	
Floyd Alexander Williams,	Agri.,	Airlie,	Polk.
Bessie Margaret Yates,	H. S.,	Corvallis,	Benton.

JUNIORS.

Names.	Course.	Postoffice.	County.
Fred Adams,	Phar.,	Roseburg,	Douglas.
Harry Benjamin Auld,	L. C.,	Woodburn,	Marion.
Miles Bebee Belden.	Min.,	Cove,	Union.
Arthur Edward Belknap,	Mech.,	Corvallis,	Benton.
Clifford Stuart Benson,	Elec.,	Roseburg,	Douglas.
Arthur George Bouquet,	Agri.,	Purley, England.	
Alfred Leroy Bradley,	Elec.,	Portland,	Multnomah.
Archibald Eugene Burns,	Elec.,	Beaverton,	Washington.
Rodney Curtis Cutsforth,	Elec.,	Gervais,	Marion.
Alice Leora Edwards,	H. S.,	Bellfountain,	Benton.
Joel Emily,	Mech.,	Troutdale,	Multnomah.
Howard Clayton Getz,	Min.,	Portland,	Multnomah.
Myrtle Edith Harrington,	H. S.,	Corvallis,	Benton.
Earl Vincent Hawley,	Elec.,	Bellfountain,	Benton.
Annie Laura Hill,	L. C.,	Hood River,	Wasco.

Mary Alicia Hill,	H. S.,	Hood River,	Wasco.
Max Hinrichs,	Elec.,	Hood River,	Wasco.
Bert Trew Jordan,	Phar.,	Albany,	Linn.
Charles David Little,	Min.,	Houlton,	Columbia.
James MacKenzie,	L. C.,	Newberg,	Yamhill.
Estella Mary Madden,	L. C.,	McMinnville,	Yamhill.
Belle Kate Mattley,	H. S.,	Lewisville,	Polk.
Cyrus Ross McCormick,	Min.,	Lebanon,	Linn.
Stella Parsons,	H. S.,	Albany,	Linn.
Minnie Ethel Phillips,	H. S.,	Corvallis,	Benton.
Amos Alfred Post,	Mech.,	Dayton,	Yamhill.
Elmer Philander Rawson,	L. C.,	Vancouver,	Wash.
Joseph Lucine Ringo,	Min.,	Molalla,	Clackamas.
Fred Miller Roth,	Min.,	Canby,	Clackamas.
Floyd Elba Rowland,	Elec.,	Shedd,	Linn.
Louis Schoel,	Elec.,	Albany,	Linn.
William Amile Schoel,	Elec.,	Albany,	Linn.
Erwin Fred Wann,	Elec.,	Salem,	Marion.
Guy Leonard Weaver,	Phar.,	Salem,	Marion.
Ward Perry Webber,	Min.,	Medford,	Jackson.
Bessie Hart Wilson,	L. C.,	Canyonville,	Douglas.

SOPHOMORES.

Names.	Course.	Postoffice.	County.
Kate Dolores Adams,	L. C.,	Myrtle Creek,	Douglas.
Ralph Wilmer Allen,	Agri.,	Rickreall,	Polk.
Jesse Applegate,	Min.,	Jacksonville,	Jackson.
Arthur Rex Barnett,	Mech.,	Athena,	Umatilla.
Elizabeth Nina Bell,	H. S.,	Beaver City,	Neb.
William Frank Bell,	Mech.,	Beaver City,	Neb.
Arthur Karl Berman,	Phar.,	Corvallis,	Benton.
Ethel Alberta Berman,	H. S.,	Corvallis,	Benton.
Hamon Shelly Bilyeu,	L. C.,	Athena,	Umatilla.
Belle Rebecca Bonney,	H. S.,	Woodburn,	Marion.
Hugh Brandon,	Phar.,	Halsey,	Linn.
Lyman Albert Bundy,	Phar.,	Nez Perce,	Idaho.
Myrtle Ruth Burnap,	L. C.,	Philomath,	Benton.
Grover Cleveland Cate,	Agri.,	Hillsboro,	Washington.
Elva Chrisinger,	L. C.,	Pendleton,	Umatilla.
Percy Elmo Clarke,	Min.,	San Francisco,	Cal.
Ray Culver,	Min.,	Reading,	Mich.
Clarence Curtis Currin,	Phar.,	KlamathF'ls,	Klamath.
Pauline Davis,	H. S.,	Newport,	Lincoln.
William James Dunlap,	Mech.,	Shedd,	Linn.
Samuel Leland Eddy,	L. C.,	Hoskins,	Benton.
John Minor Erskine,	L. C.,	Lebanon,	Linn.
Ronald Esson,	Phar.,	Gervais,	Marion.

Fred Clark Ewing,	Agri.,	Oswego,	Clackamas.
Merle Verne Forrest,	Agri.,	Amity,	Yamhill.
Julia Etta Fuller,	H. S.,	Corvallis,	Benton.
Charles Warren Fullerton,	Mech.,	Alsea,	Benton.
Clifford Lemont Gardiner,	Min.,	Astoria,	Clatsop.
Arthur Amos Garret,	Min.,	Albany,	Linn.
Philip Gearhart,	Mech.,	Astoria,	Clatsop.
Helen Margaret Gilkey,	H. S.,	Montesano,	Wash.
Vernon William Gilkey,	Mech.,	Montesano,	Wash.
Percy Glanville,	Phar.,	Milton,	Umatilla.
Glen Goodman,	Mech.,	Pendleton,	Umatilla.
Maud Crenshaw Graves,	H. S.,	Odell,	Klamath.
Benj. Howard Greenhaw,	Min.,	Portland,	Multnomah.
Everett Richard Green,	Mech.,	Oregon City,	Clackamas.
Dell Roy Groves,	Mech.,	Portland,	Multnomah.
Frank Edward Hall,	Min.,	Milwaukie,	Clackamas.
Cyrus Ashley Harlan,	L. C.,	Beatrice,	Neb.
Gretta Harrington,	H. S.,	Corvallis,	Benton.
Arthur Donald Hill,	Mech.,	Hood River,	Wasco.
Fred Miller Hofer,	Min.,	North Bend,	Coos.
Vera Delle Horner,	L. C.,	Corvallis,	Benton.
Charles Eugene Hubler,	L. C.,	Corvallis,	Benton.
Charles Ludlow Huff,	Min.,	Portland,	Multnomah.
Robert Combs Jackson,	Agri.,	Portland,	Multnomah.
James Blanco Jones,	Mech.,	Corvallis,	Benton.
William Rupert Jones,	L. C.,	Suver,	Polk.
James Garfield Kelly,	Agri.,	Lents,	Multnomah.
John Karl Knapp,	Phar.,	Oregon City,	Clackamas.
Fred Knaus,	Mech.,	Oswego,	Clackamas.
Arleigh Vance Laramore,	Agri.,	Summerville,	Union.
John Roy Leach,	Phar.,	Lexington,	Morrow.
Jens Lingaas,	Min.,	Portland,	Multnomah.
Oliver Porter Lumm,	Mech.,	Dayton,	Yamhill.
Weaver Thomas Martin,	Mech.,	McMinnville,	Yamhill.
Lewis Wallace Metzger,	Mech.,	Gresham,	Multnomah.
Margaret McCormick,	H. S.,	Lebanon,	Linn.
Madeline Lenora Nichols,	H. S.,	Glenbrook,	Benton.
James Donald Paul,	Mech.,	Portland,	Multnomah.
Ora Alva Powell,	L. C.,	Pittsburg,	Columbia.
Reta Myrtle Price,	H. S.,	Bellfountain,	Benton.
Lulu Ruth Rice,	L. C.,	Clear Lake,	Iowa.
Letha Lenore Rickard,	H. S.,	Inavale,	Benton.
Philip Cooper Rinenart,	Phar.,	The Dalles,	Wasco.
Lafe Oren Roberts,	Min.,	Woodlawn,	Multnomah.
George Herbert Root,	Agri.,	Wasco,	Sherman.
Pearl Lemuel Rose,	Mech.,	Kahlotus,	Wash.
Royal Raymond Selleck,	Mech.,	Boyd,	Wasco.

Donald Crawford Shaw,	Agri.,	Oregon City,	Clackamas.
Carl Bryant Smith,	Phar.,	Carson City,	Wash.
Ralph Edward Smith,	Agri.,	Salem,	Marion.
Roger Spicer,	Mech.,	Antelope,	Wasco.
Paul Herman Spillman,	Agri.,	Mt. Tabor,	Multnomah.
Oliver Ritchey Spires,	Phar.,	MyrtlePoint,	Coos.
Carl Marion Stebinger,	Mech.,	Portland,	Multnomah.
Fred James Stevens,	Mech.,	Hillsboro,	Washington.
Claude Vivian Swann,	Mech.,	Buena Vista,	Polk.
Agnes Sweek,	H. S.,	Burns,	Harney.
Earl Leland Sweek,	L. C.,	Burns,	Harney.
Albert Pearl Tedrow,	Mech.,	Monmouth,	Polk.
Darwin Greene Thayer,	Agri.,	Rainier,	Columbia.
Edward Spraduo Thayer,	Mech.,	Rainier,	Columbia.
Herbert Agustus Thompson,	Mech.,	Canby,	Clackamas.
Wallace Atwood Thompson,	Agri.,	Echo,	Umatilla.
Archie Clifford VanCleve,	Phar.,	Baker City,	Baker.
Clarence Cornelius Vincent,	Agri.,	Kings Valley,	Benton.
Walter Eakin Wade,	Mech.,	Summerville,	Union.
Dow Vernon Walker,	L. C.,	Portland,	Multnomah.
Bertha Estella Watrous,	L. C.,	Olympia,	Wash.
Mark Verne Weatherford,	L. C.,	Olex,	Gilliam.
Marion Francis Wilkes,	Min.,	Cripple Creek,	Colo.
Harold Wilkins,	L. C.,	Corvallis,	Benton.
Jessie Agnes Wilson,	L. C.,	Canyonville,	Douglas.
Walter Asa Winniford,	Agri.,	Wren,	Benton.
John Withycombe,	Agri.,	Portland,	Multnomah.

FRESHMEN.

Names.	Course.	Postoffice.	County.
Edna Grace Allen,	H. S.,	Corvallis,	Benton.
Arvid Anderson,	Mech.,	Albany,	Linn.
Harry Leon Andrews,	Mech.,	Portland,	Multnomah.
William Sylvester Angus,	Mech.,	Gardiner,	Douglas.
Avery Lamar Applewhite,	Agri.,	Tillamook,	Tillamook.
Ernest Everett Applewhite,	Phar.,	Tillamook,	Tillamook.
Claud Ansel Arehart,	L. C.,	JunctionCity,	Lane.
Alice Mabel Bahr,	H. S.,	Pendleton,	Umatilla.
Walter Rawalt Baber,	Mech.,	Macleay,	Marion.
Clayton Barnell,	L. C.,	LaGrande,	Union.
Warren Keifer Barnell,	Mech.,	LaGrande,	Union.
Ira Ellis Barrett,	Phar.,	Hillsboro,	Washington.
Carl Jackson Bartlett,	Mech.,	Drewsey,	Harney.
Vernetta Barbara Batdorf,	H. S.,	Oregon City,	Clackamas.
Wharton Fred. Baughman.	Min.,	Hillsboro,	Washington.
Fred Laurence Beach,	L. C.,	Hillsboro,	Washington.
Samuel Louis Bennett,	Agri.,	Medford,	Jackson.

Annie Emma Bleeg,	H. S.,	Fulton,	Multnomah.
Henrietta Blum,	L. C.,	LaGrande,	Union.
William Cowan Bolton,	Mech.,	LaGrande,	Union.
Charles Edwin Bowen,	Min.,	Oysterville,	Wash.
Leon Terry Bowser,	Mech.,	Silverton,	Marion.
Edward Horace Boyer,	Phar.,	Portland,	Multnomah.
Thomas Frank Brewster,	Phar.,	Adams,	Umatilla.
Grover Clyde Briggs,	L. C.,	Ashland,	Jackson.
Sherman Asher Brown,	Mech.,	Ft. Klamath,	Klamath.
Thomas Reeves Brown,	Agri.,	Ashland,	Jackson.
Cyril Gideon Brownell,	Agri.,	Umatilla,	Umatilla.
Carrie Buchanan,	H. S.,	Corvallis,	Benton.
Elmer Buchanan,	L. C.,	Corvallis,	Benton.
Mildred Buchanan,	H. S.,	Corvallis,	Benton.
William Robert Burrows,	Phar.,	Burns,	Harney.
William Edward Byerlee,	Mech.,	Hood River,	Wasco.
Leslie Cade,	Agri.,	Salem,	Marion.
Mabel Burdette Cady,	L. C.,	Holbrook,	Neb.
Ralph Harlan Cady,	Mech.,	Holbrook,	Neb.
Ross Cady,	L. C.,	Holbrook,	Neb.
John Lee Caldwell,	Mech.,	Burns,	Harney.
Clarence Calvert,	Agri.,	JunctionCity,	Lane.
Fred Ward Canfield,	Mech.,	Ontario,	Malheur.
George Walter Card,	Mech.,	Montavilla,	Multnomah.
Henry Carter,	Mech.,	Ashland,	Jackson.
Ray Sherman Castle,	Mech.,	Vale,	Malheur.
Collie Flint Cathey,	Agri.,	Woodburn,	Marion.
George Andrew Cathey,	Phar.,	Woodburn,	Marion.
Claud Franklin Chambers,	L. C.,	Kings Valley,	Benton.
Lincoln Beaumont Chambers	Mech.,	Kings Valley,	Benton.
Raymond Allen Chambers,	Mech.,	Newport,	Lincoln.
Norris Everard Chapin,	Mech.,	Walla Walla,	Wash.
Phillip Jodrell Cherry,	Mech.,	Astoria,	Clatsop.
Paul Childers,	Agri.,	Alicel,	Union.
Conrad Christianson,	Mech.,	Toledo,	Lincoln.
Cecil Carl Clark,	Agri.,	Logan,	Clackamas.
John Jay Clark,	Mech.,	Portland,	Multnomah.
Charles Eldridge Cleveland,	Agri.,	Gresham,	Multnomah.
Oliver Kenneth Cole,	Mech.,	Turner,	Marion.
John Edward Coleman,	Phar.,	Harrisburg,	Linn.
Inez Roxana Colvig,	Phar.,	Canyonville,	Douglas.
Mary Catherine Colvig,	H. S.,	Jacksonville,	Jackson.
Herbert Edward Cooke,	Min.,	Shaniko,	Wasco.
Robert Alvin Cook,	Mech.,	Oakville,	Linn.
Bertha Jeanette Coon,	H. S.,	Bellfountain,	Benton.
Eugene Carl Coon,	Mech.,	Hood River,	Wasco.
Thomas Melvin Coon,	Mech.,	Hood River,	Wasco.

Kenneth Leigh Cooper,	Agri.,	The Dalles,	Wasco.
Walter Rush Corbett,	L. C.,	Corvallis,	Benton.
Grace Minerva Cramer,	H. S.,	Holbrook, Neb.	
Harry Kratz Cronise,	Mech.,	Portland,	Multnomah.
Walter Griffith Cummings,	Mech.,	Corvallis,	Benton.
Burton Leigh Cunningham,	Min.,	Ft. Klamath,	Klamath.
Charlton Straw Currin,	Phar.,	KlamathFalls	Klamath.
Cleve Johnson Currin,	Agri.,	Ione,	Morrow.
Robert Hope Currin,	Phar.,	KlamathFalls,	Klamath.
Samuel Damon,	L. C.,	Independence,	Polk.
Clifford Emery Daniels,	Mech.,	McMinnville,	Yamhill.
John Wernier Darling,	Mech.,	Oregon City,	Clackamas.
Oral Everett Davidson,	Agri.,	Harrisburg,	Linn.
Una Davis,	Agri.,	LaGrande,	Union.
Claud Olson Davolt,	Mech.,	Catlin, Wash.	
William Harling Davolt,	Mech.,	Catlin, Wash.	
Percy DeGroot,	L. C.,	Medford,	Jackson.
Clara Myrtle DeHaven,	L. C.,	Winslow, Ill.	
Glen DeHaven,	Phar.,	Winslow, Ill.	
Clinton Orr Dicken,	Phar.,	Hood River,	Wasco.
James Irvin Diven,	Mech.,	Vale,	Malheur.
Vernon Lewis Diven,	L. C.,	Vale,	Malheur.
Leslie Louis Doane,	L. C.,	Sumpter,	Baker.
George Julius Dodson,	Agri.,	Snowden, Wash.	
Eugene Earl Dudley,	Agri.,	Athena,	Umatilla.
Mildred Elanore Dyer,	H. S.,	Albany,	Linn.
Harry Clay Edwards,	L. C.,	Dell,	Malheur.
Alma Ray Edwards,	H. S.,	Dell,	Malheur.
Gustave Frederick Eilers,	L. C.,	Aurora,	Marion.
Henry Detler Eisman,	Phar.,	Grants Pass,	Josephine.
Mary Elgin,	Phar.,	Corvallis,	Benton.
Charles Matthews Emery,	L. C.,	Ft. Klamath,	Klamath.
Louise Elnor Erwin,	H. S.,	Corvallis,	Benton.
Carl Wright Ewan,	Mech.,	Morrison, Colo.	
Bert Felton,	Phar.,	Corvallis,	Benton.
Villa Mae Fields,	H. S.,	Forest Grove,	Washington.
Waldo Finn,	Mech.,	McCoy,	Polk.
William Harry Finn,	Phar.,	LaGrande,	Union.
Warren Elsworth Forsythe,	Phar.,	Enterprise,	Wallowa.
Ruby Foster,	H. S.,	SummerLake,	Lake.
Samuel Lane Foster,	Agri.,	JunctionCity,	Lane.
Frank Laverne Fowells,	Mech.,	Fayette, Iowa.	
Edna Fullerton,	H. S.,	Alsea,	Benton.
Frank Asberry Galloway,	Phar.,	Elgin,	Union.
Glen Gardiner,	Min.,	Astoria,	Clatsop.
Frances Violet Gellatly,	L. C.,	Philomath,	Benton.
Jesse Smart Gilkey,	Mech.,	Montesano, Wash.	

Mary Louise Gilbert,	L. C.,	McMinnville,	Yamhill.
Claud Harry Giles,	L. C.,	Myrtle Point,	Coos.
Benjamin John Gooch,	Mech.,	Shelburn,	Linn.
Edward Aseph Goodrich,	Mech.,	Lebanon,	Linn.
Jay Gould,	L. C.,	Burns,	Harney.
Ellen Mabel Grady,	H. S.,	LaGrande,	Union.
Samuel Herman Graf,	Mech.,	Lafayette,	Yamhill.
Thomas Rader Graham,	Phar.,	Corvallis,	Benton.
Walter Sherman Gray,	Phar.,	Gardiner,	Douglas.
Azora Buell Gregg,	H. S.,	Amity,	Yamhill.
Henry Connor Gregg,	L. C.,	Amity,	Yamhill.
Greta India Grey,	L. C.,	Arapahoe,	Neb.
Frederick Griffin,	Agri.,	Canby,	Clackamas.
Nelson Gunderson,	L. C.,	Sodaville,	Linn.
Newell Addison Haines,	Min.,	Latourell,	Multnomah.
Stella Adalaide Hall,	L. C.,	Mankato,	Kansas.
Charles William Hamilton,	L. C.,	McMinnville,	Yamhill.
Stanley Hammel,	Phar.,	Portland,	Multnomah.
Ellsworth Braden Hanna,	Phar.,	Scappoose,	Columbia.
Frank Hannenkratt,	Mech.,	Tillamook,	Tillamook.
John Edward Hanny,	Mech.,	Oregon City,	Clackamas.
Lora Maud Hansell,	L. C.,	Corvallis,	Benton.
Earle Paul Harding,	Phar.,	Gaston,	Washington.
Mae Harris,	H. S.,	SummerLake,	Lake.
Charley Sinclair Harris,	Mech.,	Vale,	Malheur.
Samuel Kelly Hartsook,	Phar.,	Oakland,	Douglas.
Byron Nathaniel Hawks,	Phar.,	Pendleton,	Umatilla.
Floy Naoma Hawley,	H. S.,	Bellfountain,	Benton.
Charles Henry Hays,	Agri.,	Sherwood,	Washington.
Robert Blaine Hays,	Mech.,	Tillamook,	Tillamook.
Bessie Ruth Herbert,	L. C.,	Corvallis,	Benton.
Margaret Herron,	Mech.,	JunctionCity,	Lane.
Hal Hibbs,	Mech.,	Gaston,	Washington.
Charles William Hickey,	Mech.,	Portland,	Multnomah.
Ethel Merian Higdon,	H. S.,	Canon City,	Colorado.
Faye Arementhy Hill,	H. S.,	Warrenton,	Clatsop.
Ralph Hinrichs,	Mech.,	Hood River,	Wasco.
Clare Conrad Hollenberg,	L. C.,	Stuttgart,	Arkansas.
Soren Francisco Holm,	Mech.,	Milwaukie,	Clackamas.
Percy Joshua Holmes,	Mech.,	Suver,	Polk.
Robert Owsley Horning,	L. C.,	Silver Lake,	Lake.
Lois Susanna Horton,	H. S.,	Bridal Veil,	Multnomah.
Joseph William Howard,	Phar.,	Prineville,	Crook.
Golda Ethyl Howard,	H. S.,	Monroe,	Benton.
Mabel Frances Hudelson,	L. C.,	Cambridge,	Idaho.
Jacob Floyd Huff,	Phar.,	Corvallis,	Benton.
Edward Richard Hughes,	Mech.,	Oregon City,	Clackamas.

William Clyde Hughes,	Min.,	Oregon City,	Clackamas.
Calvin Asa Ingle,	Phar.,	Milton,	Umatilla.
Forrest Scott Ivanhoe,	Mech.,	LaGrande,	Union.
Cleo Lorena Johnson,	H. S.,	Scio,	Linn.
Clarence William Johnson,	Agri.,	Newberg,	Yamhill.
Oliver Clarence Johnson,	Min.,	John Day,	Grant.
Charles Harden Johnson,	Phar.,	Mitchell, South Dakota.	
Florence Elva Johnson,	L. C.,	John Day,	Grant.
Paul Agnew Jones,	Min.,	Ontario,	Malheur.
Earnest Eugene Jones,	Phar.,	Selma, Cal.	
Grover Jameson,	L. C.,	Burns,	Harney.
Elton Irwin Kelly,	Mech.,	Aims,	Clackamas.
Lloyd Kelty,	Phar.,	N. Yamhill,	Yamhill.
Fred Kerr,	Phar.,	Corvallis,	Benton.
Bertha Anna King,	H. S.,	Corvallis,	Benton.
Mabel Kinnison,	H. S.,	Baker City,	Baker.
Waino Kraus,	Mech.,	Seaside,	Clatsop.
Roscoe Verne Lake,	Agri.,	Corvallis,	Benton.
Raymond George Lamberson	Mech.,	Portland,	Multnomah.
Homer Clarence Leonard,	Agri.,	Sheridan,	Yamhill.
Letticia Pearl Leonard,	H. S.,	Sheridan,	Yamhill.
Adah MacDonald,	L. C.,	Grants Pass,	Josephine.
Vella Mace,	L. C.,	Burns,	Harney.
Isabelle Mallett,	H. S.,	Ontario,	Malheur.
May Martin,	Phar.,	McMinnville,	Yamhill.
Sanford Roy Mattison,	Agri.,	Gaston,	Washington.
Grace Mays,	H. S.,	The Dalles,	Wasco.
Hugh McCall,	Agri.,	LaGrande,	Union.
John Lester MacFarland,	Mech.,	Albany,	Linn.
Jonas Bliss McKennon,	Agri.,	Alicel,	Union.
Herbert Berry McLane,	Mech.,	Lyons,	Linn.
Walter Scott McLeod,	Phar.,	Elgin,	Union.
James Stewart McMahan,	L. C.,	Corvallis,	Benton.
David McMillan,	Mech.,	Oregon City,	Clackamas.
Ralph McNeill,	Mech.,	Portland,	Multnomah.
Hugh Christopher McRae,	Agri.,	Summerville,	Union.
Lenna Louise Meeker,	H. S.,	Laurel, Neb.	
John Melhase,	Min.,	Ft. Klamath,	Klamath.
Harold Merriman,	Phar.,	Burns,	Harney.
Charles Ralph Miller,	Mech.,	Gresham,	Multnomah.
Frank Rowland Miller,	Phar.,	Corvallis,	Benton.
Ralph Sinclair Miller,	Min.,	Oregon City,	Clackamas.
Vincent Irving Miller,	L. C.,	Burns,	Harney.
Albert Mount,	Phar.,	Silverton,	Marion.
Clark Mundy,	Phar.,	Mt. Tabor,	Multnomah.
Alpha Robert Murray,	Agri.,	Corvallis,	Benton.
George Allen Nelson,	Agri.,	Dixie,	Washington.

Charles Leroy Nelson,	Mech.,	Dixie,	Washington.
Victor Earnest Niederer,	Mech.,	Summerville,	Union.
Irving J. Nottingham,	Agri.,	Portland,	Multnomah.
Jesse Ray Nottingham,	H. S.,	Portland,	Multnomah.
Ralph Foster O'Rourke,	Agri.,	Sumpter,	Baker.
May Oviatt,	H. S.,	Buell,	Polk.
Charles Taylor Parker,	L. C.,	Salem,	Marion.
Mabel Blanche Parker,	H. S.,	Salem,	Marion.
Bessie Florence Parsons,	H. S.,	Albany,	Linn.
Winnie Nellie Parsons,	H. S.,	Albany,	Linn.
Philip Oliver Pelland,	Mech.,	St. Paul,	Marion.
George Calendar Pewtherer,	Mech.,	Rickreall,	Polk.
Jesse Claude Plankington,	Mech.,	Dallas,	Polk.
Asa Holcolm Post,	Agri.,	Dayton,	Yamhill.
Roy Wilber Price,	L. C.,	Scappoose,	Columbia.
Ray Robert Ragsdale,	L. C.,	Moro,	Sherman.
Nollie Frank Reed,	Phar.,	Burns,	Harney.
Joseph George Reiling,	Min.,	Parkplace,	Clackamas.
Ralph Elmer Reynolds,	Agri.,	LaGrande,	Union.
Clyde Rhodes,	Min.,	Ashland,	Jackson.
Arthur James Rich,	Phar.,	Astoria,	Clatsop.
Charles Fairfowl Roberts,	L. C.,	Hood River,	Wasco.
Richard Manville Robinson,	L. C.,	Riddles,	Douglas.
Lloyd Loyal Robinson,	Mech.,	Salem,	Marion.
Robert Orr Robinson,	Mech.,	Holley,	Linn.
Leo Joseph Rosenstein,	Mech.,	Oregon City,	Clackamas.
Harold Goltra Rumbaugh,	Min.,	Albany,	Linn.
Charles Frederick Schirmer,	Min.,	Oregon City,	Clackamas.
Adolph Harry Schmidt,	Mech.,	The Dalles,	Wasco.
Charles Vernon Schrack,	Agri.,	Tangent,	Linn.
Claude Schrack,	Agri.,	Tangent,	Linn.
Otto Harrison Schrader,	Mech.,	Tillamook,	Tillamook.
John Godfrey Schroeder,	L. C.,	Portland,	Multnomah.
Mary Rosa Scoggin,	H. S.,	Wasco,	Sherman.
Donald Crawford Shaw,	Agri.,	Oregon City,	Clackamas.
James Royal Shaw,	Mech.,	Albany,	Linn.
Leroy Sims,	Mech.,	Portland,	Multnomah.
Thomas Roy Sleight,	Mech.,	Oregon City,	Clackamas.
Irvin Earl Small,	Agri.,	Silver Lake,	Lake.
Ethel Louise Smith,	L. C.,	Silverton,	Marion.
Frank Leroy Smith,	Agri.,	Corvallis,	Benton.
Philip Smith,	Min.,	Corvallis,	Benton.
Forrest Custer Smithson,	Mech.,	Portland,	Multnomah.
Elizabeth Vivian Snipes,	H. S.,	The Dalles,	Wasco.
George Snipes,	Mech.,	The Dalles,	Wasco.
Joe Snipes,	Min.,	The Dalles,	Wasco.
Fred Lloyd Spires,	Mech.,	Myrtle Point,	Coos.

Claude Bates Sprague,	Agri.,	Oregon City,	Clackamas.
Helen Maude Sprague,	H. S.,	Oregon City,	Clackamas.
Grace Elizabeth Starr,	H. S.,	Bellfountain,	Benton.
Alva Edward Stovall,	L. C.,	Philomath,	Benton.
Lloyd Loraine Stratton,	Agri.,	Portland,	Multnomah.
Milton Adams Stratton,	Mech.,	Portland,	Multnomah.
August Albert Swan,	L. C.,	Hubbard,	Marion.
Howard Weston Tabor,	Mech.,	Sheridan,	Yamhill.
Zack LaFayette Taylor,	L. C.,	Corvallis,	Benton.
Lee Arden Thomas,	Mech.,	Huit, Wash.	
Ralph Infield Thompson,	Mech.,	Heppner,	Morrow.
Carrie Edna Thrasher,	H. S.,	Corvallis,	Benton.
Vallard Thurston Truax,	Mech.,	Grants Pass,	Josephine.
Lulu Turner,	H. S.,	Dallas,	Polk.
Herbert Ray Tyler,	Agri.,	Lents,	Clackamas.
Hattie Elizabeth Vanhoosen	H. S.,	Corvallis,	Benton.
Louella VanCleve,	H. S.,	Baker City,	Baker.
Evans Craig Varner,	Mech.,	Marx,	Tillamook.
Ira Lester Vincent,	L. C.,	Kings Valley,	Benton.
Agnes von der Hellen,	L. C.,	Wellon,	Jackson.
Geo. Bruce von der Hellen,	Min.,	Wellon,	Jackson.
Harry Byrd Waggoner,	Min.,	Corvallis,	Benton.
Laura Benton Waggoner,	H. S.,	Corvallis,	Benton.
Walter Robinson Waggoner,	Phar.,	Corvallis,	Benton.
Rupert Wall,	Mech.,	Early,	Sherman.
Rae Mike Walker,	L. C.,	Independence,	Polk.
Roy Walker,	Min.,	Bly,	Klamath.
Matthew Wantock,	Mech.,	Toledo,	Lincoln.
Clarence Theodore West,	Mech.,	Olex,	Gilliam.
Edwin David Wetmore,	Min.,	Cleone,	Multnomah.
Margaret Johanna Wevley,	H. S.,	Portland,	Multnomah.
George Ernest Whitcombe,	Min.,	Foster,	Linn.
Erle Roy White,	Agri.,	Royston,	Klamath.
Eugene Cyrus Wiggen,	Mech.,	Westport,	Clatsop.
Oscar Philip Wigle,	Mech.,	Brownsville,	Linn.
Reuben Wills,	L. C.,	Heppner,	Morrow.
Bertha Estis Williams,	H. S.,	Burns,	Harney.
Frank Jackson Wilson,	Phar.,	Canyonville,	Jackson.
Nellie Witham,	H. S.,	Corvallis,	Benton.
Alvah Witzig,	Mech.,	Parkplace,	Clackamas.
Minnie Louisa Woldt,	H. S.,	Corvallis,	Benton.
Walter Ernest Wood,	Mech.,	Corvallis,	Benton.
Clyde Harold Woodcock,	Mech.,	Corvallis,	Benton.
Junious Edgar Woodell,	Agri.,	LaGrande,	Union.
Jesse Ralph Woodford,	Phar.,	Medford,	Jackson.
Ernest Rowland Woods,	L. C.,	Albany,	Linn.
Lavina Wood,	H. S.,	Corvallis,	Benton.

David Alvis Wright,	Mech.,	Woodburn,	Marion.
Lulu Marie Wright,	H. S.,	Silver Lake,	Lake.
Olive Isabel Wright,	H. S.,	Silver Lake,	Lake.
Joseph Clinton Wright,	Agri.,	Silver Lake,	Lake.

SUB-FRESHMEN.

Names.	Postoffice.	County.
Gustav Abraham,	Albany,	Linn.
Robert William Andross,	Island City,	Union.
Harry Asbahr,	Hillsboro,	Washington.
Arthur Austin,	Dolph,	Tillamook.
Clay Belshe,	Moro,	Sherman.
Henry Ludwig Bergman,	Gardiner,	Douglas.
Hughbert Edwin Brady,	Sherwood,	Washington.
Guy Ercil Brown,	Philomath,	Benton.
William Cullen Bryant,	Woodburn,	Marion.
Philip Harrison Cale,	Oakville,	Linn.
Ira Wallace Carl,	Myrtle Point,	Coos.
Leslie Clark,	Roseburg,	Douglas.
Florence Grace Coon,	Hood River,	Wasco.
Viola Ruth Coon,	Hood River,	Wasco.
Roy Francis Cooper,	Corvallis,	Benton.
Edward Arthur Craig,	Hillsboro,	Washington.
George Richard Cummings,	Canby,	Clackamas.
Amy Cyrus,	Crabtree,	Linn.
Nellie Cyrus,	Crabtree,	Linn.
Leonard Fred Darby,	Ellensburg,	Wash.
Alexander Dee Davis,	LaGrande,	Union.
DeWalt Quinn Elrod,	Moro,	Sherman.
Alfred John Evans,	Mosier,	Wasco.
Henry Ward Farrel,	Scappoose,	Columbia.
Walter Allen Foster,	Cove,	Union.
James Arthur Freeborough,	Montaville,	Multnomah.
James Edward French,	Corvallis,	Benton.
Grover Garfield Gerking,	Athena,	Umatilla.
Walter Sherman Gray,	Gardiner,	Douglas.
Viola Estella Gribble,	Aurora,	Marion.
Benjamin Henry Haak,	Silverton,	Marion.
Etta Anna Hall,	Milwaukie,	Clackamas.
Ralph Hamilton Hawley,	Bellfountain,	Benton.
Cora Hawley,	Bellfountain,	Benton.
Joseph Hooker Hoffman,	Newberg,	Yamhill.
Mervin Herbert Horton,	Burns,	Harney.
Finley Imbert,	Wheeler,	Washington.
Harry Eliot Jenkins,	Portland,	Multnomah.
William George Lane,	Harrisburg,	Lane.
Charlie Herbert Leonard,	Sheridan,	Yamhill.

Linnie Edna Lerwill,	Junction City,	Lane.
William Ervin Loomis,	Eugene,	Lane.
Hugh Lane McFadden,	Junction City,	Lane.
Marvin McGhee,	Burns,	Harney.
Frederick Emmett McGrew,	Weston,	Umatilla.
Wayne Carl McLagan,	Tangent,	Linn.
Andrew Malagamba,	Seaside,	Clatsop.
Earl August Miebus,	Portland,	Multnomah.
Margaret Alice Miller,	Burns,	Harney.
Frank Morgan,	Burns,	Harney.
Clarence Ofstedahl,	Toledo,	Lincoln
Oscar Ofstedahl,	Toledo,	Lincoln
Augusta Lorene Parker,	Salem,	Marion.
Clifton Purdy,	Gaston,	Washington.
Alfhild Romtvedt,	Toledo,	Lincoln.
Henry Earl Rooper,	Antelope,	Wasco.
John August Rooper,	Antelope,	Wasco.
John Andrew Schasson,	Kent,	Sherman.
Eugene Schiller,	Sylvan,	Multnomah.
Emma Caroline Schoel,	Albany,	Linn.
Earl Royal Smith,	Harrisburg,	Linn.
Marcus Struve,	Adams,	Umatilla.
Daniel Murray Sutherland,	Shedd,	Linn.
Durland Orville Taggart,	Vale,	Malheur.
James Harvey Test,	Ontario,	Malheur.
Robert Zahnister Walker,	Gold Beach,	Curry.
Walter Walling,	Oswego,	Clackamas.
George Ward,	Alicel,	Union.
Lelia Lucile West,	Scappoose,	Columbia.
Melissa Whitney,	Chitwood,	Lincoln.
Inez Williams,	Bellfountain,	Benton.
Clyde Everett Williamson,	Albany,	Linn.
Martha Delilah Winniford,	Wren,	Benton.
Charles Ellsworth Witham,	Corvallis,	Benton.
Robert Cecil Wygant,	Toledo,	Lincoln.

SPECIALS.

Names.	Postoffice.	County.
Mirza Abbas,	Madras, India.	
Florence Kimball Adams,	Warren,	Columbia.
Julia Mary Borst,	Centralia, Wash.	
Cloy Harris Buchanan,	SpringHill, Tenn.	
Zella Alice Cole,	Turner,	Marion.
Juliet Hamilton Cooper,	Palo Alto, Cal.	
Louise Cooper,	Palo Alto, Cal.	
Adalaide Cramer,	Corvallis,	Benton.
Florence Douglass,	Santa Rosa, Cal.	

Susie Fiser,	Ontario,	Malheur.
Winnifred Evangeline Gates,	Corvallis,	Benton.
Ida Amelia Hodes,	Watertown, Wis.	
Edna Armington Irving,	Corvallis,	Benton.
Helen Amanda Keelblock,	Watertown, Wis.	
Edith Dunn Liddle,	Corvallis,	Benton.
Belle Kate Mattley,	Lewisville,	Polk.
Gertrude McBee,	Corvallis,	Benton.
Oliver C. McDowell,	Prineville,	Crook.
Hattie Josephine Mix,	Independence,	Polk.
Gladys Gwendoline Moore,	Prineville,	Crook.
Eva Theresa Myers,	Decatur, Ill.	
Lulu Aneil Newhouse,	Corvallis,	Benton.
Cecelia Anne O'Reilly,	Portland,	Multnomah.
Fred Porter,	Corvallis,	Benton.
Lizzie Sophia Powell,	Oakland,	Douglas.
Laura Frances Pratt,	Mound City, Mo.	
Irene Brown Sproat,	Hood River,	Wasco.
Una Stewart,	Prineville,	Crook.
Loraine Stratton,	Portland,	Multnomah.
Nettie May Thatcher,	Corvallis,	Benton.
Clara Troxel,	Hoskins,	Benton.
Fannie Trusty,	Fort Dodge, Iowa.	
Daisy Juanita Whitlow,	LaGrande,	Union.

SHORT COURSES: AGRICULTURE AND DAIRYING.

Names.	Postoffice.	County.
Mrs. S. Adams,	Roseburg,	Douglas.
Henry Baker,	Grants Pass,	Josephine.
Charles H. Barnell,	LaGrande,	Union.
Mrs. C. H. Barnell,	LaGrande,	Union.
Mrs. M. A. Barton,	Vale,	Malheur.
H. M. Berry,	Suver,	Polk.
Henry Belloni,	Coquille,	Coos.
Mrs. Alice C. Brooks,	Corvallis,	Benton.
L. L. Brooks,	Corvallis,	Benton.
Andrew Can,	Fishhawk,	Columbia.
Charles C. Clade,	Scio,	Linn.
Frank Clingman,	Halsey,	Linn.
Burton E. Cobb,	Florence,	Lane.
Alexander P. Davis,	LaGrande,	Union.
Mrs. A. P. Davis,	LaGrande,	Union.
Bert Eugene Dean,	Monroe,	Benton.
Oscar DeHaven,	Corvallis,	Benton.
George P. Dekum,	Portland,	Multnomah.
Henry S. French,	Corvallis,	Benton.
John A. Gilkey,	Montesano, Wash.	

John Goodchild,	Corvallis,	Benton.
Sarah Goodchild,	Corvallis,	Benton.
Ulysses Grant Hale,	Albany,	Linn.
Thos. Henry Hanly,	Coquille,	Coos.
Crum Haynes,	Forest Grove,	Washington.
Frank M. Hopkins,	Corvallis,	Benton.
J. P. Kaifer,	Clatsop,	Clatsop.
Samuel H. Moore,	Corvallis,	Benton.
Mrs. Sarah E. Moore,	Prineville,	Crook.
John W. McAllister,	LaGrande,	Union.
Evan McLeman,	Corvallis,	Benton.
Roy V. Ohmart,	Salem,	Marion.
John Olson,	Bay View,	Lincoln.
S. O. Pease,	Summer Lake,	Lake.
W. I. Price,	Corvallis,	Benton.
Arthur Payton Persinger,	Monroe,	Benton.
Stanley Taylor,	Grants Pass,	Josephine.
Henry Thompson,	Gold Beach,	Curry.
W. A. Thrift,	Shedd,	Linn.
Alice Vidito,	Alsea,	Benton.
Willis Vidito,	Alsea,	Benton.
Mary E. Shafford,	Portland,	Multnomah.
Mark E. Smith,	Klamath Falls,	Klamath.
Mary C. Wade,	Summerville,	Union.
J. A. Whitlow,	LaGrande,	Union.
S. N. Wilkins,	Corvallis,	Benton.

PIANO STUDENTS.

Names.	Postoffice.	County.
Mary Bergmann,	Gardiner,	Douglas.
Gladys Borst,	Centralia, Wash.	
Cloy Buchanan,	Spring Hill, Tenn.	
Gustaf Eilers,	Aurora,	Marion.
Rachel Evans,	Lyons, Neb.	
Susie Fiser,	Ontario,	Malheur.
Ruby Foster,	Summer Lake,	Lake.
Glen Gardiner,	Astoria,	Clatsop.
Louise Smith Glanville,	Milton,	Umatilla.
Ellen Grady,	LaGrande,	Union.
Blanche Hammel,	Corvallis,	Benton.
Gretta Harrington,	Corvallis,	Benton.
Mae Harris,	Summer Lake,	Lake.
Fay Hill,	Warrenton,	Clatsop.
Pearl Horner,	Corvallis,	Benton.
Vera Horner,	Corvallis,	Benton.
Mabel Huddleson,	Cambridge, Idaho.	
Inez Johnson,	Corvallis,	Benton.

Mrs. Thomas Jones,	Corvallis,	Benton.
Grace Mays,	The Dalles,	Wasco.
Gertrude McBee,	Corvallis,	Benton.
Ada McDonald,	Grants Pass,	Josephine.
Gladys Moore,	Corvallis,	Benton.
Jessie Ray Nottingham,	Portland,	Multnomah.
Lizzie Powell,	Oakland,	Douglas.
Forrest C. Smithson,	Portland,	Multnomah.
Irene Sproat,	Hood River,	Wasco.
Una Stewart,	Prineville,	Crook.
Lorraine Stratton,	Portland,	Multnomah.
Clara Troxel,	Hoskins,	Benton.
Ward Webber,	Medford,	Jackson.
Daisy Whitlow,	LaGrande,	Union.
Harold Woodcock,	Corvallis,	Benton.

VOCAL MUSIC STUDENTS.

Names.	Postoffice.	County.
Jessie Applegate,	Jacksonville,	Jackson.
Kate Delores Adams,	Myrtle Creek,	Douglas.
Rosa Lee Adams,	Warren,	Columbia.
Edna Grace Allen,	Corvallis,	Benton.
Martha Christine Berchtold,	Corvallis,	Benton.
Anna Leah Bane,	Corvallis,	Benton.
Carrie Buchanan,	Corvallis,	Benton.
Grover Clyde Briggs,	Ashland,	Jackson.
Ross Cady,	Holbrook, Neb.	
George Andrew Cathey,	Woodburn,	Marion.
Collie Flint Cathey,	Woodburn,	Marion.
John Jay Clark,	Portland,	Multnomah.
Oliver Kenneth Cole,	Turner,	Marion.
Inez Romana Colvig,	Jacksonville,	Jackson.
Juliet Hamilton Cooper,	Palo Alto, Cal.	
Mayme McLouth Cordley,	Corvallis,	Benton.
George Richmond Cummings,	Canby,	Clackamas.
John Wernier Darling,	Oregon City,	Clackamas.
Percy DeGroot,	Medford,	Jackson.
Clara Myrtle DeHaven,	Winslow, Ill.	
Oral Everett Davidson,	Rowland,	Linn.
Alice Leora Edwards,	Bellfountain,	Benton.
Julia Ella Fuller,	Corvallis,	Benton.
George Furber,	Kansas City, Kan.	
Ada Naomi Farmer,	Corvallis,	Benton.
Maybel Farmer,	Corvallis,	Benton.
William Harry Finn,	LaGrande,	Union.
Grover Garfield Gerking,	Athena,	Umatilla.
Frank Asberry Galloway,	Elgin,	Union.

Eva Grugett,	Corvallis,	Benton.
Sophia Hartley,	Cottage Grove,	Lane.
Donald Hill,	Hood River,	Wasco.
Cora Alice Hawley,	Bellfountain,	Benton.
Ralph Hamilton Hawley,	Bellfountain,	Benton.
Golda Ethyl Howard,	Bellfountain,	Benton.
Margaret Herron,	Junction City,	Lane.
Frank Edward Hall,	Milwaukie,	Clackamas.
Calvin Asa Ingle,	Milton,	Umatilla.
Fay Arminthy Hill,	Warrenton,	Clatsop.
Ora Dell Jones,	Corvallis,	Benton.
Florence Elva Johnson,	John Day,	Grant.
Jean Marian Kent,	Corvallis,	Benton.
Mabelle Bee Keady,	Corvallis,	Benton.
Ethel Linville,	Corvallis,	Benton.
Hettie Alice Lilly,	Corvallis,	Benton.
Ruth Laura Lilly,	Corvallis,	Benton.
Lillian May Lake,	Corvallis,	Benton.
William Irvin Loomis,	Eugene,	Lane.
May Margaret Martin,	McMinnville,	Yamhill.
Frances Vidella Miller,	Corvallis,	Benton.
Vella Mace,	Burns,	Harney.
Margaret Alice Miller,	Burns,	Harney.
Eva Theresa Myers,	Decatur, Ill.	
Gertrude Alice McBee,	Corvallis,	Benton.
Mark Dee MacAlister,	Pratum,	Marion.
Charles Ralph Miller,	Gresham,	Multnomah.
Victor Ernest Neiderer,	Summerville,	Union.
Minnie Ethel Phillips,	Corvallis,	Benton.
George Calendar Pewtherer,	Rickreall,	Polk.
Mabel Blanche Parker,	Salem,	Marion.
Marjorie Ellen Richards,	Farmington, N. H.	
Richard M. Robinson,	Riddles,	Douglas.
Edith Sheak,	Philomath,	Benton.
Hellen Lorain Stratton,	Portland,	Multnomah.
Mary Rosa Scoggin,	Wasco,	Sherman.
Una Ellner Stewart,	Prineville,	Crook.
John Geofrey Schroeder,	Portland,	Multnomah.
Edna Louise Smith,	Latourell,	Multnomah.
Benjamin Trueblood Smith,	Salem,	Marion.
Agnes Sweek,	Burns,	Harney.
Mary Simpson,	Corvallis,	Benton.
Lena Belle Tartar,	Airlie,	Polk.
Agnes von der Hellen,	Wellen,	Jackson.
Vivian Wellsher,	Corvallis,	Benton.
Rose Wilson,	Corvallis,	Benton.
Lavina Wood,	Corvallis,	Benton.

Emma Jean Woodcock,	Corvallis,	Benton.
Rupert Wall,	Early,	Sherman.
Bertha Estes Williams,	Burns,	Harney.
Daisy Juanita Whitlow,	LaGrande,	Union.

RECAPITULATION.

	Men	Women	Dept. Total	Class Total
Graduates	4	7		11
Seniors—				
Mining	3		3	
Mechanical	5		5	
Electrical	11		11	
Literary Commerce	2	3	5	
Household Science		13	13	
Agricultural	7		7	
Pharmacy	4	1	5	
Total seniors				49
Juniors—				
Mechanical	3		3	
Electrical	10		10	
Mining	7		7	
Literary Commerce	3	3	6	
Household Science		6	6	
Agricultural	1		1	
Pharmacy	3		3	
Total juniors				36
Sophomores—				
Mechanical	26		26	
Mining	12		12	
Literary Commerce	11	7	18	
Household Science		13	13	
Agricultural	16		16	
Pharmacy	12		12	
Total sophomores				97
Freshmen—				
Mechanical	91		91	
Agricultural	43		43	
Household Science		51	51	
Literary Commerce	37	16	53	
Pharmacy	40	3	43	
Mining	23		23	
Total freshmen				304
Sub-Freshmen	60	15		75
Special	4	29		33
Special Agriculture and Dairying	36	10		46
Music				
Vocal	29	51		80
Piano	6	27		33
Students Counted Twice—				764
Music—Vocal	27	31	58	
Piano	6	20	26	
Total				84
Number of students in college	476	204		680

Students Classified by Courses of Study.

MECHANICS.		
Seniors	5	
Juniors	3	
Sophomores	26	
Freshmen	91	
ELECTRICAL ENGINEERING.		
Seniors	11	
Juniors	10—	146
HOUSEHOLD SCIENCE.		
Seniors	13	
Juniors	6	
Sophomores	13	
Freshmen	51—	83
AGRICULTURE.		
Seniors	7	
Juniors	1	
Sophomores	16	
Freshmen	43—	67
PHARMACY.		
Seniors	5	
Juniors	3	
Sophomores	12	
Freshmen	43—	63
LITERARY COMMERCE.		
Seniors	5	
Juniors	6	
Sophomores	18	
Freshmen	53—	82
MINING.		
Seniors	3	
Juniors	7	
Sophomores	12	
Freshmen	23—	45
GRADUATES		11
SPECIAL STUDENTS		33
MUSIC		113
SUB-FRESHMEN		75
DAIRYING & AGRICULTURE		46
GRAND TOTAL		764
COUNTED TWICE.		
Music	84	
NUMBER OF STUDENTS		680

Students Classified by Counties, States and Foreign Countries.

For four months ending January 17, 1905.

Baker	5
Benton	131
Clackamas	32
Clatsop	10
Columbia	11
Coos	7
Crook	5
Curry	2
Douglas	18
Grant	2
Gilliam	3
Harney	16
Jackson	14
Josephine	5
Klamath	11
Lake	8
Lane	11
Lincoln	10
Linn	51
Malheur	13
Marion	36
Morrow	3
Multnomah	52
Polk	21
Sherman	6
Tillamook	7
Umatilla	17
Union	35
Wallowa	1
Wheeler	0
Wasco	30
Washington	21
Yamhill	23

Number of counties in Oregon	33
Total number of counties represented	32
Whole number of students from Oregon	617
Arkansas	1
California	7
Colorado	2
England	1
Idaho	3
Illinois	3
India	3
Iowa	3
Kansas	2
Missouri	1
Nebraska	12
New Hampshire	1
South Dakota	1
Tennessee	1
Utah	1

Washington	19
Wisconsin	2
Total	680

Comparative Statement of Enrollment.

Year.	*Music, Special.*	*Preparatory.*	*Freshmen.*	*Sophomores.*	*Juniors*	*Seniors*	*Graduate Students.*	*Special.*	*Dairying.*	*Total.*
1888–1889		36	33	14	14	0	0	0		97
1889–1890		67	55	17	6	0	6	0		151
1890–1891		76	83	24	15	0	3	0		201
1891–1892		86	63	28	19	9	3	0		208
1892–1893		98	123	31	18	7	5	0		282
1893–1894		36	103	71	21	5	4	0		240
1894–1895		47	85	64	52	13	0	0		261
1895–1896		80	175	63	54	9	14	2		397
1896–1897		*Sub-*	157	80	29	17	11	22		316
1897–1898		*Fresh-*	151	75	45	26	15	24		336
1898–1899		*men.*	164	79	30	36	15	14		338
1899–1900		42	145	74	40	36	20	48		405
1900–1901		44	177	72	42	37	9	55		436
1901–1902	14	38	247	83	30	38	10	28		488
1902–1903	21	54	232	97	40	36	12	32	17	541
1903–1904	48	85	191	80	46	39	3	28	10	530
1904–1905	29	75	304	97	36	49	11	33	46	680

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1905-06

Agricultural College Bulletin

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....Oregon....
Agricultural College

1905-1906.....

ANNUAL CATALOGUE

OF THE

AGRICULTURAL COLLEGE

OF THE

STATE OF OREGON

FOR

1905-1906

AND

ANNOUNCEMENTS FOR 1906-1907

CORVALLIS, OREGON

AGRICULTURAL COLLEGE PRESS
1906

Calendar==1906=1907.

SEPTEMBER.

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APRIL.

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MAY.

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AUGUST.

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CALENDAR.

FIRST TERM.

Entrance Examinations for Freshmen, Friday and Saturday, September 14-15, 1906.

Registration, Monday, September 17, 1906.

Recitations begin Tuesday, September 18, 1906.

Final Examinations, Wednesday, Thursday and Friday, December 19-21, 1906.

SECOND TERM.

Registration, Tuesday, January 8, 1907.

Recitations begin Wednesday, January 9, 1907.

Final Examinations, Monday, Tuesday, and Wednesday, March 18-20, 1907.

THIRD TERM.

Registration, Tuesday, March 25, 1907.

Recitations begin Wednesday, March 26, 1907.

Baccalaureate Sermon, Sunday, June 9, 1907.

Final Examinations, Friday, Monday and Tuesday, June 7, 10, 11, 1907.

Commencement Day, Wednesday, June 12, 1907.

NOTE.

All absences of students who registered in the preceding term will will be charged from the first class recitation of the current term. At the close of each term of school, students will receive certificates of standing from their instructors. Standings of students will be sent to parents or guardians on application to the President or the Registrar.

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OF THE
OREGON AGRICULTURAL COLLEGE
AND
EXPERIMENT STATION.

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Hon. Austin Buxton, *Master of State Grange*	Forest Grove.

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Hon. John D. Daly	Portland, 1907.
Hon. B. F. Irvine	Corvallis, 1907.
Hon. J. T. Apperson	Parkplace, 1910.
Hon. W. P. Keady	Portland, 1910.
Hon. J. K. Weatherford	Albany, 1910.
Hon. John D. Olwell	Central Point, 1912.
Hon. William W. Cotton	Portland, 1912.
Hon. Walter M. Pierce	Pendleton, 1912.

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OF THE

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JOHN B. HORNER, A. M., LITT. D., Registrar,
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Professor of Zoölogy.

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ABRAHAM LINCOLN KNISELY, M. S.,
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GEORGE COOTE,
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JOHN FULTON B. Agr., B. S.,
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CLAUDE ISAAC LEWIS, B. S.,
Professor of Horticulture.

FACULTY AND INSTRUCTORS.

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Assistant Professor of English.

FRED LEROY KENT, B. AGR.,
Associate Professor of Agriculture and Dairying.

CHARLES LESLIE JOHNSON, B. S.,
Assistant Professor of Mathematics.

EMILE FRANCIS PERNOT, M. S.,
Professor of Bacteriology.

CLARENCE MELVILLE McKELLIPS, PH. C.,
Assistant Professor in Pharmacy.

MAJOR FRANK EDWARDS, B. M. E.,
Instructor in Chemistry and Commandant.

WILLIAM THOMAS SHAW, B. AGR., M. S.,
Instructor in Biology.

MARK CLYDE PHILLIPS, B. M. E.,
Instructor in Mechanical Drawing and Ironwork.

AMMEE LEVERETT,
Director of the Art Department.

HELEN LUCILE HOLGATE, B. H. E.,
Stenography and Typewriting.

FLORENCE McDOWELL GREEN, Mus. B.,
Instructor in Vocal Music.

* GERARD TAILLANDIER,
Piano, and Instructor in German.

NICHOLAS TARTAR,
Instructor in Mathematics and English.

MARY ELIZABETH SUTHERLAND, B. S.,
Instructor in Dressmaking.

WILL ORIAN TRINE,
Physical Director.

---

* Terms for private instruction in French can be had by applying to Professor Taillandier.

FACULTY AND INSTRUCTORS.

RICHARD JEFFREY NICHOLS, B. S.,
Librarian.

JOHN HYNES McDOUGAL, A. B.,
Assistant Professor of Mechanical and Electrical Engineering.

HARRY BEARD, B. S.,
Assistant in English and Band Master.

CHESTER LLOYD PROEBSTEL, B. S.,
Assistant in Mining.

MARK DOW McCALLISTER, B. S.,
Instructor in Woodwork.

WILLIAM McCAULLY PORTER,
Instructor in Blacksmithing.

OTHER OFFICERS.

THOMAS HENRY CRAWFORD, A. M.,
Clerk and Purchasing Agent.

RICHARD JEFFREY NICHOLS, B. S.
Librarian.

GEORGE BRELSFORD KEADY,
Printer.

HELEN LUCILE HOLGATE, B. H. E.,
Station Stenographer.

JUANITA ROSENDORF, B. S.,
College Stenographer and Clerk in Department of Registration.

ARTHUR WILLIAM KEADY,
Assistant Printer.

WALTER JAMES KENT,
Foreman of the Farm.

JOHN ANDERSON SPANGLER,
Engineer.

ELLSWORTH ERWIN,
Janitor.

ROBERT CLEMENT WILLS,
Carpenter.

FACULTY COMMITTEES.

ACCREDITED SCHOOLS.—Pernot, Covell, Leverett, Proebstel.

ADVANCED STANDING.—Knisely, Kent, Shaw, Phillips.

ADVISORY COMMITTEE.—Covell, Snell, Horner, Withycombe.

ATHLETICS.—Johnson, Trine, Shaw, Fulton.

DISCIPLINE.—Skelton, Horner, Callahan.

EMPLOYMENT.—Coote, Withycombe, Knisely, Edwards.

ENTRANCE EXAMINATIONS.—Tartar, Berchtold, Helen V. Crawford, Callahan.

GRADUATES.—Berchtold, Kent, McDougal.

LECTURES AND LITERARY ENTERTAINMENTS.—Helen V. Crawford, Edwards, Horner, Shaw.

LEGISLATION.—Withycombe, Covell, Leverett.

LIBRARY.—Callahan, Withycombe, Holgate, Horner.

LITERARY SOCIETIES.—Snell, McKellips, Pernot.

MASTER'S DEGREE.—Lake, Skelton, Cordley.

MUSIC.—Thomas H. Crawford, Green, Fulton, Taillandier, Holgate.

PUBLICATIONS.—Horner, Berchtold, Lake, Cordley.

SOCIAL ENTERTAINMENTS.—Cordley, Crawford, Kent, McDougal.

TERM SCHEDULES.—Fulton, Horner, Johnson, Beard, Phillips.

THE STATION STAFF.

THOMAS MILTON GATCH, A. M., PH. D.
President.

JAMES WITHYCOMBE, M. AGR.
Director and Agriculturist.

ARTHUR BURTON CORDLEY, M. S.
Entomologist.

EDWARD RALPH LAKE, M. S.
Botanist.

GEORGE COOTE
Florist and Gardener.

ABRAHAM LINCOLN KNISELY, M. S.
Chemist.

FRANK EDWARDS, B. M. E.
Assistant Chemist.

CLARENCE MELVILLE McKELLIPS, PH. C.
Assistant Chemist.

FRED LEROY KENT, B. S., AGR.
Assistant Agriculturist and Dairy Instructor.

EMILE FRANCIS PERNOT, M. S.
Bacteriologist.

CLAUDE ISAAC LEWIS, B. S.,
Horticulturist.

THOMAS HENRY CRAWFORD, A. M.
Clerk and Purchasing Agent.

HELEN LUCILE HOLGATE, B. H. E.
Stenographer.

Oregon Agricultural College.

HISTORY.

By an act of Congress, approved by President Lincoln, July 2, 1862, a grant of land was made to each state in the Union in the amount of thirty thousand acres, or its equivalent, for each Senator and Representative to which the state was entitled by the apportionment of the census of 1860.

The proceeds under this act were to constitute a perpetual fund the principal of which was to remain forever undiminished; but interest arising from said fund, in each state which should avail itself of the benefits of the act, was to be applied inviolably to the support and maintenance of a "College where the leading objects shall be, without excluding other scientific and classical studies, and including military tactics, to teach such branches of learning as are related to agriculture and the mechanic arts, in such a manner as the legislatures of the states may respectively prescribe, in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions of life."

Ninety thousand acres of land were apportioned to Oregon, and by an Act approved October 9, 1862, the Legislative Assembly of Oregon accepted the provisions of the congressional law.

In 1868 the state legislature appointed three commissioners to locate the land; and a report of the selections made, was submitted in 1870.

There were in 1868 no state colleges in Oregon, and the same legislature that provided for the selection of the land gave the use of the funds that should arise from the sale of such land to the Corvallis College, in Benton county, an institution of learning under the control of the M. E. Church, South.

None of the land of the land grant having as yet been sold, the legislature made a small annual appropriation to support the school until the fund to be derived from the grant should become adequate.

In 1885 the church voluntarily relinquished its claim on the funds of the Agricultural College, and the state assumed control vesting the full management of the college in a board of regents.

In the summer of 1887 the corner-stone of a brick structure, now known as the administration building, was laid by the Governor of Oregon amid imposing ceremonies. This building, erected by citizens of Benton county on the Agricultural College farm, was the nucleus around which eleven other buildings eventually clustered as necessity and growing interests demanded.

THE MORRILL ACT.

On August 30, 1890, "An Act" was passed by Congress "to apply a portion of the proceeds of the public lands to the more complete endowment and support of the colleges for the benefit of agriculture and the mechanic arts established under the provisions of an act of Congress approved July 2, 1862."

This act provided that in 1890, $15,000 should be paid to each of the land grant colleges and that the amount so

appropriated should be increased by the sum of $1,000 annually for ten years, and that thereafter the amount annually appropriated should continue to be $25,000.

It also is provided that this money shall be "applied only to instruction in agriculture, the mechanic arts, the English language and the various branches of mathematical, physical, natural and economic sciences with special reference to their application in the industries of life, and to the facilities for such instruction." And it further provided that "no portion of said moneys shall be applied, directly or indirectly, under any pretense whatever, to the purchase, erection, preservation, or repair of any building or buildings."

THE HATCH ACT.

In addition to the above, this college receives from the United States, under the "Hatch Bill" of 1887, the sum of $15,000 a year for conducting experiments in agriculture. With this sum it supports an agricultural experiment station in connection with the college. Although the "Hatch Fund" is used entirely for experiment work, it is exceedingly valuable to students in agriculture and horticulture.

THE ADAMS ACT.

What may be known as the "Adams Act" was passed by Congress in March last. It carries with it an appropriation to supplement the Hatch Act. It makes an initial appropriation of $5000 available next fiscal year and an annual increase of $2000 until in the aggregate it amounts to $15,000. This fund is to be under the control of the Department of Agriculture and will probably be placed under the immediate supervision of the office of Experiment

Stations. This will give the Experiment Station control of $30,000, instead of the $15,000 now at its command.

LOCATION.

The State Agricultural College is located at Corvallis, Oregon, near the head of navigation on the Willamette river and is accessible by railway from the east, west, north and south. The city, as its name indicates, is in the heart of the Willamette valley. To the east is the Cascade range with its snow-capped peaks, while to the west, and near at hand is the Coast range. Chintimini, the tallest in the range, is covered with snow for several months of the year, and, though fourteen miles away, adds beauty to the scene.

A COLLEGE TOWN WITHOUT A SALOON.

Corvallis is a city of two thousand inhabitants, many churches and *no saloons*. The city, which is situated on high ground, has never been visited by any dangerous epidemic disease. The State Board of Health and other authorities have made frequent mention of the healthfulness of Corvallis and vicinity; and have spoken of the location of the College as one of the chief causes of its rapid growth.

The Sunday Oregonian of recent date said editorially:

> "Friends and patrons of the State Agricultural College will be glad to learn that the town of Corvallis and the College campus and buildings will be amply supplied with pure water from a mountain stream fourteen miles distant before work is resumed in the College in the Fall. Pipe laying for the new system is proceeding at the rate of half a mile a day, and it is probable that students who have been kept on boiled water for months will get a chance to sample pure water direct from the city hydrants before Commencement day."

COLLEGE GROUNDS.

The College grounds cover an area of 224 acres. Of this acreage about three-fifths is devoted to croppage including the common farm and garden crops, native pasture, orchards, small fruits and vines. The remaining two-fifths is devoted to lawns, shrubberies, athletic sports and flower-gardens. The main campus is tastefully designed for landscape effects and the ultimate purpose is to use native trees and shrubs for the body of the plantings, with a view to exhibiting the value of our native plants for ornamental and economic purposes.

BUILDINGS.

"The Administration Building was erected by the citizens of Benton County, and with 35½ acres of ground was donated to the State of Oregon, as an inducement to the people of the State to locate permanently the State Agricultural College at Corvallis. It is a three story brick building containing fourteen rooms suitably arranged and well adapted for school purposes. It is of the estimated value of $25,000.00.

The Agricultural Hall, which is a three-story Oregon gray granite and sandstone building 85x125 feet, is situated about 150 yards southeast of the Administration Building. It is intended for an assembly hall for the Agricultural and Horticultural classes, laboratories and class rooms and for all purposes connected with agriculture and chemistry, dairying and the Experiment Station. It cost about $42,000.00.

Mechanical Hall is located about 150 yards northeast of the Administration Building. It is constructed of Oregon gray granite and sandstone. It is two stories high, 90x100 feet. It is a fine substantial building, well arranged and admirably adapted for the purpose for which it is used. It is valued at $23,000.00 and contains machinery worth $12,000.00.

The Armory is situated south of the Administration Building some 200 yards. This is a large two story wooden structure 70x120 feet. It is used for public gatherings, for armory purposes, gymnasiums, etc. It is valued at $10,000.

Cauthorn Hall is a three-story wooden structure intended for a home for young men attending the College and will accommodate 100 persons. It is valued at $15,000.00.

Alpha Hall is a two-story frame building, designed as a home for young ladies attending College and will accommodate 40 persons. It is valued at $4,000.00.

Horticultural Building stands north of the Administration Building about 200 yards, and is used as class rooms and has laboratories and green houses connected therewith. It is, including laboratories, valued at $2,500.00.

The Mining Laboratory, which is situated just south of the Administration Building, is a frame building of the value of $4,000.00.

West of the Administration Building and about 200 yards distant, is located the blacksmith shop, a one story brick structure, large and roomy, valued at $6,000.00.

North of the Administration Building is the heating and power plant. The building is of brick and the plant consists of two boilers each of 75-horse power, and one of 50 horse power, of superior make and quality, also a 40 horse power engine and suitable dynamos to furnish light and power. From this plant all the buildings on the grounds are heated, by means of pipes conducting the heat underground to the various buildings. Electricity is generated by steam power and is conducted to all of the buildings belonging to the College. The building and machinery and heating apparatus are valued at $33,000.00.

The water supply is obtained from wells north and west of the Administration Building by means of pumps operated by steam engines stationed in the pump house. The machinery, building and water tower are of the value of $2,000.00.

FARM.

The farm has also good barns, a number of silos, the usual farm machinery and is of the value of $2,500.00.

STUDENT LIFE.

CAUTHORN HALL.

Cauthorn Hall, commonly known as the Young Men's Hall, was named in honor of Senator Thomas Cauthorn, a benefactor of the Oregon Agricultural College. It was erected in 1891, for the use of young men who desire to live economically while attending school and at the same time enjoy the privileges and influences of dormitory life. The building, which is conveniently located and amply supplied with hot and cold water, bath rooms, steam heat and electric lights, is sufficiently large to accommodate one hundred persons. The dining room, kitchen, and reading room are pleasant and well furnished. Students' rooms are uniformly ten feet wide, and respectively fourteen, seventeen and twenty feet long.

Each student's room is furnished with a table, chairs, a chest with drawers; and each student is supplied with mattress, springs and a bedstead three feet wide and six feet long. The student is expected to furnish four sheets, two pillowcases, blankets, quilt, pillow, window-blind 3 x 6½ feet, towels, broom, dustpan, washbowl, pitcher, slop-pail, mirror, comb, brushes, tumblers, carpet, pictures and other ornaments that will make his room comfortable and homelike. He should bring a dictionary and such other books as are used for study, for reference, and for profitable entertainment.

The hall is managed by Mr. and Mrs. R. L. Whitehead with Instructor Mark Dow McCallister as resident master.

To obtain a room in Cauthorn Hall it is necessary for the applicant to furnish satisfactory evidence that he does not use tobacco nor profane language, and that his conduct is gentlemanly at all times.

The cost of living at Cauthorn Hall, including rent, heat, board, etc., is $3.00 per week payable monthly, in advance. No reduction will be made during the term, save for prolonged absence caused by sickness, when one-half will be deducted.

Each student on engaging a room is required to deposit $3.00 with the manager, which amount—loss and breakage deducted—will be returned when the room is vacated.

The hall is furnished with a reading room which is supplied by the club with choice current literature.

Relatives and visiting friends will be charged 15 cents per meal and 20 cents for lodging.

Cauthorn Hall will be closed during the winter holidays.

For further information send for special circular.

ALPHA HALL.

Alpha Hall is a pleasant home for young ladies who desire to live with the family of one of the Professors while attending College. Convenient to the Administration building, it is located on grounds which have been artistically decorated, and which have never been visited by typhus or other similar disorders.

The Hall is lighted with electricity, and it is furnished with hot and cold water, bath room and other modern conveniences. The rooms are approximately 12x13 feet in size. Each suite as well as each single room has been arranged for two persons.

Each room is supplied with a stove, table, chairs, chest with drawers, bedstead with springs and mattress—single or double as desired. The student is expected to furnish sheets, pillow, pillow cases, blankets, quilts, towels, broom, dust-pan, wash-bowl, pitcher, mirror, comb, brushes, tumbler, carpet or art square, pictures and other ornaments to make her room comfortable and homelike.

The cost of living at Alpha Hall will be $3.00 per week, payable monthly in advance. A student occupying an entire room or suite will be charged fifty cents extra per week to cover fuel and other additional expenses. Those having rooms engaged in advance pay board from the beginning of the term. No reduction will be made during the term, save for prolonged absence caused by sickness, when one-half will be deducted.

Each student will be required to deposit $3.00 on engaging her room, which amount—loss and breakage deducted—will be returned when the room is vacated.

Relatives and visiting friends will be charged 15 cents per meal.

Alpha Hall will be closed during Christmas holidays, but such of the young ladies as desire to remain in Corvallis during that time will be cared for with but little if any additional expense.

For further particulars send for special circular.

SOCIAL LIFE OF THE STUDENTS.

Literary contests are common events, the societies meeting in joint session, with prominent citizens as judges. The Y. M. C. A. and Y. W. C. A. hold their regular sessions at the college every Sunday afternoon throughout the school year. These gatherings aid materially in developing the social and spiritual life of the members. At the beginning of the school year these associations conduct an employment bureau also a bureau of information at their headquarters, and furnish Y. M. C. A. hand-books gratis to all students. Each year a popular course of lectures free to all students is given, under the direction of the faculty, by distinguished speakers from various parts of the state. Vocal and instrumental music intersperse various features of the college work, so that a student in a career of four years may not leave the institution without the refining influences of this important art. Physical culture is encouraged in every way at the gymnasium and on the training grounds. Bowling, fencing, Indian-club swinging, dumb-bell exercises, foot ball, basket ball, base ball, golf and lawn tennis occupy the spare moments of the students in a happy commingling of all classes. These social affairs, although under the direction of a committee of the faculty, are managed by the students who thereby acquire a training in social life destined to be of great value to them.

Corvallis is pre-eminently a college town noted for social clubs, literary societies, and active churches which vie with each other in friendly interest and hospitality toward our young people. More and more as the institution progresses patrons of the college move hither that they may be with their children and at the same time enjoy the refining influences and cultured society of a college community.

"* * * Alluding to a reference which had been made, Mr. Brown explained that he did not fully understand what was meant by the word 'crank' and said in effect, 'I want to congratulate the people of Benton County upon the lofty character of their citizenship. I want to congratulate Benton County and her citizens upon the high reputation she carries among her sister counties. I want to add that no county in Oregon, in proportion to its population, has so little litigation in the courts, as does this county of Benton with its alleged cranks. No county in Oregon in proportion to its population has so few criminal prosecutions; no county has so few persons brought to the bar of justice; no county in the second judicial district is at so little expense in the conduct of its court as is Benton and no county anywhere is better fitted by the character of its people to be the home of a great educational institution, as is Benton County, with its so-called cranks.'"—*From an address by District Attorney George Brown before the Circuit Court of Benton.*

SOCIETIES.

The students maintain ten literary societies, five for young ladies and five for young gentlemen. These societies are of a semi-fraternal nature, offering to their members social as well as literary advantages. The exercises consist principally of essays, declamations, debates and music. Public and joint meetings are held by permission of the faculty. Many other features of college life, social and literary, are under their supervision.

The following is a list of the different literary societies now in existence:

For young ladies: Sorosis, Pierian, Feronian, Utopian, Clionian.

For young men: Amicitia, Jeffersonian, Philadelphian, Zetagathian, Athenaeum.

The membership of each of these societies is limited to forty. The other societies in the College are the Miners' Association, Engineer Association, Hindu-American Association, Agricultural, Prohibition and Camera Clubs.

BAROMETER.

In March, 1896, the literary societies of the college began the publication of a monthly periodical, the "College Barometer." The enterprise met with marked success, and the paper, controlled entirely by students, now wields a strong influence in all college affairs. During the coming year every effort will be made to improve it and make it of interest not only to those directly connected with the school, but to all who are in touch with literary, scientific and industrial education. The editors will be pleased to receive news of alumni and other persons formerly connected with the college. Brief, pointed notes, accounts of scientific experiments and discoveries, and short, well-written and instructive literary articles are also solicited.

ATHLETICS.

The Oregon Agricultural College is a member of the Northwest Intercollegiate Athletic Association. This association is composed of the leading colleges and universities of the Northwest, organized for the better control of college athletics.

The students also maintain an athletic association known as the Athletic Union of the Agricultural College of Oregon. This organization supports foot-ball, base-ball, basket-ball and track teams and has general charge of all athletics under the supervision of the athletic committee of the faculty.

The College now owns a fine athletic field properly fenced, a neat and commodious grandstand, an excellent quarter-mile tract. The enclosed area is thoroughly drained, graded and seeded, making this one of the best athletic fields in the Pacific Northwest.

The training and the physical condition of all athletes are supervised by the Director of Athletics, W. O. Trine, who has long been recognized as one of the most efficient trainers on the coast.

GOVERNMENT.

The college does not undertake to prescribe in detail either its requirements or prohibitions. Students are met on a plane of mutual regard and helpfulness. Our appeal is to a proper sense of the proprieties of life and the necessity of organization on such a basis.

Established by a government that recognizes no distinction of religious belief, the Oregon Agricultural College seeks neither to promote any creed nor to exclude any; but it will always do everything in its power to promote the religious spirit and life.

Whenever the college life of any student is such that his influence, directly or indirectly, is injurious to the work of the institution, he will be relieved from further attendance at this college.

COURSE OF LECTURES.

In addition to the regular lectures given in the various departments by members of the faculty, a course of lectures by representative men, is delivered at convenient intervals during the year. These lectures bring young people in contact with leaders in the various departments of human endeavor; arouse investigation on current topics; stimulate students to emulate the achievements of specialists; give breadth of scholarship to the student and aid in developing the character of the institution. They rank among the most attractive features of college life and are free to all students.

CONDITIONS OF ADMISSION.

All applicants for matriculation in any department except music must be at least fifteen years of age.

To enter the freshman year the applicant must be able to pass a satisfactory examination in reading, spelling, geography (physical and descriptive), arithmetic (written and mental), United States history, English grammar, and algebra to quadratics.

ADMISSION FROM OTHER COLLEGES.

Students from other colleges must show a certificate of good standing, or honorable dismissal. Such applicants will receive credit for studies pursued in any college authorized to confer degrees, so far as the two courses are equivalent, upon presenting a certificate of standing from the proper officers.

ADMISSION FROM ACCREDITED SCHOOLS.

Graduates from the following accredited high schools and academies will be admitted to the freshman year without examination, provided they have completed algebra to quadratics:

Albany,
Astoria,
Ashland.
Baker City,
Bandon (Major Course),
Bishop Scott Academy,
Burns,
Carlton,
Coquille Collegiate Institute,
Corvallis,
Cottage Grove,
Cove,
Elgin,
Lakeview,
Lebanon,
Marshfield,
McMinnville,
Medford,
Milton,
Moro,
North Yamhill,
Oregon City,
Ontario,
Parkplace,
Pendleton,
Portland,

Eugene,
Forest Grove,
Fossil,
Garland Academy,
Grant's Pass,
Gresham,
Heppner,
Hillsboro High School,
Hill's Military Academy,
Hood River,
Independence,
Jacksonville,
Klamath Falls,
Lafayette High School,
La Grande,
Prineville,
Roseburg,
Salem,
Santiam Academy,
Silverton,
Summerville,
The Dalles,
The Allen Preparatory School, Portland,
Tillamook,
Union,
Vale,
Wasco,
Woodburn.

Those completing the two-year high school course prescribed by the Oregon State Board of Education will be permitted to register as Freshmen without examination. Those completing the four-year high school course may, upon presenting their diplomas, register as Sophomorse. The heads of our various departments will give credit for equivalent work done in class or laboratory.

ADMISSION UPON CERTIFICATES AND STATEMENTS.

The holder of a certificate or statement signed by the county school board of examiners certifying that at a regular teachers' examination he received a satisfactory grade to entitle him to a teacher's certificate, may be admitted to all the freshman classes except algebra. He may remove such deficiency in algebra upon furnishing the President with a satisfactory statement from a teacher or school superintendent that the applicant is familiar with the subject of algebra to quadratics; or, upon arrival at the college, he may make good such deficiency by examination or by class recitation.

ADMISSION TO THE SUB-FRESHMAN CLASS.

The course of instruction offered under this head is intended for young people who live at considerable distance from an academy or high school, and are unable to attend such, but have finished the eighth grade in a good public school. No tuition is charged. The work is distributed in the three terms as follows:

SUB-FRESHMAN YEAR.

FIRST TERM.

English Grammar 5	English A
English Composition 5	English B
Arithmetic 5	Mathematics A
Physical Geography 5	Geography A
Reading 1, 2.	Elocution A
Military Drill 2½, 5 (young men)	Military A
Physical Culture 1½, 3 (young ladies)	Physical Culture A

SECOND TERM.

English Grammar 5	English C
English Composition 5	English D
Elementary Algebra 5	Mathematics B
U. S. History 5	History A
Elocution 1, 2	Elocution B
Military Drill 2½, 5	Military B
Physical Culture 1½, 3	Physical Culture B

THIRD TERM.

Civil Government	Civics A
English Grammar 5	English E
English Composition 5	English F
Algebra 5	Mathematics C
U. S. History 5	History B
Elocution 1, 2	Elocution C
Military Drill 2½, 5	Military C
Physical Culture 1½, 3	Physical Culture C

According to a regulation of the board of regents students shall not be admitted to this class who come from towns or cities of more than fifteen hundred inhabitants, or from such communities as are supporting good high schools.

ADMISSION OF SPECIAL STUDENTS.

None can be admitted as irregular or special students unless they belong to one of the following classes:

1. Those who desire to devote special attention to music and take at least two lessons a week in our department of music.

2. Those who on account of poor health certified by physicians cannot take a complement of studies.

3. Residents who are heads of families and have household duties to look after.

4. Residents who are engaged in a regular business or profession and have time for only one or two studies.

5. Such persons as may be permitted to take special studies by vote of the Faculty at a regular monthly meeting.

DIRECTIONS TO NEW STUDENTS.

Special students and also applicants for admission with credentials from universities, colleges, academies and high schools—graduates from accredited schools being excepted—shall report to the President.

Applicants who have previously matriculated in this College and those who hold teachers' certificates or have graduated from accredited schools and desire to enter the Academic department, also 8th grade graduates from country schools who desire to matriculate as Sub-Freshmen, should apply to the Registrar.

Unless otherwise ordered by the President, all other applicants for admission will apply to Professor Tartar, chairman of the committee on examinations, who will appoint the time and place for examination.

SCOPE OF THE INSTITUTION.

The scope of the institution, as now organized, cannot be better stated than in the comprehensive words of the act of Congress defining the duty of this and similar colleges:

"The leading object shall be, without excluding other scientific and classical studies, and including military tactics, to teach such branches of learning as are related to agriculture and the mechanic arts, in such manner as the legislature of the state may prescribe, *in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions of life.*"

Based upon a broad foundation, the special work of the Oregon Agricultural College is the training of youth in those branches of learning which lie at the foundation of modern industrial pursuits. In accordance with the purposes of its founders, and the terms of its original charter, it aims to give special and prominent attention to agriculture, both theoretical and experimental; but it also provides "a liberal and practical education" in the leading branches of mathematical, natural and physical sciences, in order to prepare youth "for the several pursuits and professions of life." It has increased its subjects and courses of study, and its teaching and illustrative equipment, to such an extent that now, "without excluding classical studies," its leading object is to teach the various sciences in such a manner as to show their applications in the more important industries, and to combine with every branch of instruction such an amount of actual practice in the shop, the field, and the laboratory as will serve to illustrate and apply the theory, without subordinating it. The course in agriculture, as now arranged, conforms very closely to the recommendations of the *Association of American Agricultural Colleges and Experiment Stations.* The range of work in the various courses is shown, as far as space will allow, in the following descriptive statements and schedule. It is confidently believed that few institutions in the country furnish opportunities for obtaining advanced scientific education to an equal extent and thoroughness at so moderate a cost and with so many incidental advantages.

DEGREES AND COURSES OF STUDY.

UNDERGRADUATE WORK.

The college offers nine courses of instruction of four years each leading to the degree of Bachelor of Science, viz:—

Agriculture,
Forestry,
Household Science,
Mechanical Engineering,
Electrical Engineering,
Mining Engineering,
Civil Engineering,
Pharmacy,
Literary Commerce.

All of these require training in English, mathematics, history, elocution, drawing and such other branches as are requisite to a practical education.

In order that the college may meet the needs of a greater number of people and the students intensify along special lines, much of the work is made elective, as may be seen by reference to the courses of study published elsewhere in this catalogue.

In addition to the above courses provision has been made for courses in Vocal and Instrumental Music, a two-year course in Mining, a two-year course in Pharmacy, and short course in Agriculture and Dairying.

GRADUATES AND THESES.

Students intending to graduate must file notice of such intention accompanied with subject of thesis in the President's office on or before November 1. All theses should be ready for criticism by the Professor in English not later than April 15, and shall be neatly recopied and bound by

May 25. Applications for certificates in a two-year course shall be filed not later than June 1.

GRADUATE WORK.

That students may be encouraged to continue their college work after graduation, the board of regents has made provision for courses leading to advanced degrees.

ADVANCED DEGREES.

Advanced degrees will be given to graduates of this college, or similar approved colleges, upon the following conditions:—

DEGREES IN ENGINEERING.

Degrees in Engineering will be conferred on graduates completing the fifth or graduate year in the following courses upon the approval of their theses by the head Professors:

Agriculture,
Electrical Engineering,
Mechanical Engineering,
Mining Engineering.

MASTER'S DEGREE.

An applicant for this degree must present himself for examination in one major and at least one minor study. Major and minor courses of two years leading to the degree of Master of Science, to be selected from different departments, approved by the faculty, are provided for in the departments of Agriculture, Botany, Chemistry, Economics, Horticulture, Zoology, Mechanical and Electrical Engineering and Household Science. The minor, at the option of the student, may also be taken from the departments of Mathematics, English History or Modern Languages. The candidate must prepare a thesis, based upon original research, which shall show scholarly acquirements of a high order. This thesis must be printed or typewritten and bound, and two copies of it left in the college library. The candidate must spend at least one academic year, or its equivalent, as a resident student at this college in preparing for this degree.

The graduate year looking to the Engineering Degree will be accepted as the residence year for the Master's Degree.

ALUMNI DIRECTORY.

Since the triennial edition of the catalogue containing the alumni directory will be issued next year, all members and friends of the alumni association are earnestly invited to forward to the Registrar prior to April 1, such information as they may have relative to the addresses and occupations of the alumni.

COURSE IN AGRICULTURE.

FRESHMAN YEAR.

FIRST TERM.

Algebra 5	Mathematics I.
English Composition 5	English I
General History 5	History I.
* Freehand Drawing 1½, 3	Drawing I.
Elocution 1, 2	Elocution I.
*Woodwork 2½, 5	Shopwork I.
Military Drill 2½, 5	Military I.

SECOND TERM.

Geometry 5	Mathematics VIa.
English Composition 5	English II.
* General History 5	History II.
Elocution 1, 2	Elocution II.
Freehand Drawing 1½, 3	Drawing II.
Woodwork 2½, 5	Shopwork II.
Military Drill 2½, 5	Military II.
Physical Culture 1, 2	Physical Culture I.

THIRD TERM.

Geometry 5	Mathematics Va.
Composition and Rhetoric 5	English III.
Plant Morphology 5, 7	Botany I.
Breeds of Stock 5	Agriculture I.
*Freehand Drawing 2½, 5	Drawing III.
Military Drill 2½, 5	Military III.

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* Latin may be elected instead, but no credit will be given towards graduation for less than the full course of six terms.

SOPHOMORE YEAR.

FIRST TERM.

General Chemistry 5, 7	Chemistry I.
Trigonometry 5	Mathematics VI.
Rhetoric 5	English IV.
* Plant Histology 5, 7	Botany II.
Blacksmithing 1½, 3	Shopwork IV.
Military Drill 2½, 5	Military IV.

SECOND TERM.

Physics 3	Physics I.
Physical Laboratory 2, 4	Physics III
General Chemistry 5, 7	Chemistry II.
Rhetoric 4	English V.
Soils and Manures 2½	Agriculture III.
Dairying 2½	Agriculture II.
*Blacksmithing 2½, 5	Shopwork V.
Military Drill 2½, 5	Military V.
Physical Culture 1, 2	Physical Culture II.

THIRD TERM.

*Physics 3	Physics II
Physical Laboratory 2, 4	Physics IV.
Qualitative Analysis 5	Chemistry XV.
English Literature 5	English VI.
Zoology 5, 7	Zoology I.
Irrigation and Drainage 5	Agriculture IV.
Military Drill 2½, 5	Military VI.

JUNIOR YEAR.

FIRST TERM.

English Literature 5	English VII
*Entomology 5, 7	Zoology II.
Agricultural Chemistry 5	Chemistry IV.
Dairying 5	Agriculture V.
Military Drill $2\frac{1}{2}$, 5	Military VIII.
Military Science 1	Military Science I.

SECOND TERM.

Plant Physiology 5, 7	Botany III.
*Literature 5	English VIII.
Vertebrate Anatomy 5, 7	Zoology III.
Agricultural Chemistry 5	Chemistry IVa.
Military Drill $2\frac{1}{2}$, 5	Military IX.
Military Science 1	Military Science II.

THIRD TERM.

American Literature 5	English IX.
*Surveying 5, 9	Civil Engineering IV.
†Quantitative Chemistry 5, 7	Chemistry V.
American Politics 5	Political Science II.
Physiology 5, 7	Zoology IV.
Steam Engine 1, 2	Mechanics IV.
Military Drill $2\frac{1}{2}$, 5	Military XI.
Military Science 1	Military Science III.

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† Required of students who elect thesis work in the department of chemistry.

SENIOR YEAR.

FIRST TERM.

Economics 5	Political Science I.
Geology 5	Geology I.
Horticulture 2½, Hort. I, or Agrostology 2½	Bot. XII.
German 5, or	German I.
French 5	French I.
Military Drill 2½, 5	Military XII.
Military Science 1	Military Science IV.

†Electives.

Chemistry 5, 7	Chemistry VI.
Mineralogy 3, 6	Mineralogy I.
Forestry	Botany VIII.
Kitchen Gardening	Gardening I.
Botany 5, 7	Botany IV.
Zoology 5, 7	Zoology VI.
Bacteriology 5, 7	Bacteriology I.

SECOND TERM.

Psychology 5	Mental Science I.
Horticulture 2½	Horticulture II.
Stock Feeding and Breeding 5	Agriculture VI.
German, or	German II.
French 5	French II.
Military Drill 2½, 5	Military XIV.
Military Science 1	Military Science V.

†Electives.

Botany 5, 7	Botany V.
Forestry 5	Botany IX.
Kitchen Gardening 5	Gardening II.
Chemistry 5, 7	Chemistry VII.
Zoology 5, 7	Zoology VII.
Bacteriology 5, 7	Bacteriology II.

Assaying 3, 6	Mineralogy IV.
Elocution 1, 2	Elocution V.

THIRD TERM.

Soil Physics 5, 7	Chemistry XXII.
Veterinary Science 5	Agriculture VII.
Horticulture 5	Horticulture III.
German, or	German III.
French 5	French III.
Military Drill 2½, 5	Military XVI.
Military Science 1	Military Science VI.

†*Electives.*

American Literature 5	English IX.
Astronomy 5	Mathematics XI.
Forestry 5	Botany X.
Kitchen Gardening 5	Gardening III.
Agricultural Engineering 5	Civil Engineering X.
Botany 5, 7	Botany VI or VII.
Zoology 5, 7	Zoology VIII.
Chemistry 5, 7	Chemistry VIII.
Bacteriology 5, 7	Bacteriology III.
Assaying 3, 6	Mineralogy IV.

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† In addition to the required studies seniors must select from the electives a sufficient number of hours to form a full course of 22 hours, counting thesis five hours for last two terms.

A student may upon obtaining written consent of the heads of departments interested, substitute higher mathematics for any other branch of study.

GRADUATE YEAR.

FIRST TERM.

German 5, or	German IV.
French 5	French IV.
Highway Construction 5, 7	Civil Engineering VII.
Farm Mechanics 5	Agriculture VIII.
Thesis 3	

SECOND TERM.

German 5, or	German V.
French 5	French V.
Highway Construction 5, 7	Civil Engineering VIII.
Farm Management 5	Agriculture IX.
Thesis 3	

THIRD TERM.

German 5, or	German VI.
French 5	French VI.
Live Stock Management 5	Agriculture X.
Thesis 3	

Electives.

Steam Engines and Boilers 4	Mechanical Eng. VII.
Agricultural Engineering 5, or	Civil Engineering X.
Other Electives of Senior year 5.	

COURSE IN HOUSEHOLD SCIENCE.

FRESHMAN YEAR.

FIRST TERM.

Algebra 5	Mathematics I.
English Composition 5	English I.
General History 5	History I.
* { Freehand Drawing 1½, 3	Drawing I.
{ Elocution 1, 2	Elocution I.
General Hygiene ½, 1	Household Science I.
Sewing 2, 4	Household Science II.
Physical Culture 1½, 3	Physical Culture I.

SECOND TERM.

Geometry 5	Mathematics IVa.
English Composition 5	English II.
*General History 5	History II.
Elocution 1, 2	Elocution II.
Freehand Drawing 1½, 3	Drawing II.
Etiquette ½, 1	Household Science III
Sewing 2, 4	Household Science IV.
Physical Culture 1½, 3.	Physical Culture II.

THIRD TERM.

Geometry 5	Mathematics Va.
Composition and Rhetoric 5	English III.
Plant Morphology 5, 7.	Botany I.
*Freehand Drawing 2½, 5	Drawing III.
Sewing 2½, 5	Household Science V.
Physical Culture 1½, 3.	Physical Culture III.

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*Latin or German may be elected instead, but no credit will be given towards graduation for less than the full course of six terms.

SOPHOMORE YEAR.

FIRST TERM.

General Chemistry 5, 7	Chemistry I.
Plant Histology 5, 7	Botany II.
Rhetoric 5	English IV.
Dressmaking 2½, 5	Household Science VI.
Elocution 1, 2	Elocution III.
*Physical Culture 1½, 3	Physical Culture IV.
Care of the Sick 2	Household Science XV.

SECOND TERM.

*Floriculture 5	Floriculture I.
History of Eastern Peoples 5	History III.
General Chemistry 5, 7	Chemistry II.
Rhetoric 4	English V.
Dressmaking 2½, 5	Household Science VII.
Physical Culture 1½, 3	Physical Culture V.

THIRD TERM.

English Literature 5	English VI.
Zoology 5, 7	Zoology I.
Chemistry of Common Life	Chemistry XI.
Modern History 5	History IV.
* Dressmaking 2½, 5	Household Science VIII.

JUNIOR YEAR.

FIRST TERM.

Literature 5	English VII.
Entomology 5, 7	Zoology II.
Floriculture 5	Floriculture II.
German 5, or,	German I.
Latin 5	Latin I.
Cookery 1½, 3	Household Science IX.

SECOND TERM.

Plant Physiology 5, 7	Botany III.
Literature 5	English VIII.
German 5, or,	German II.
Latin 5	Latin II.
Vertebrate Anatomy 5, 7	Zoology III.
Cookery 1½, 3	Household Science X.
Physical Culture 1½, 3	Physical Culture VI.

THIRD TERM.

Dairying 5, or,	Agriculture V.
American Literature 5	English IX.
German 5, or,	German III.
Latin 5	Latin III.
Physiology 5, 7	Zoology IV.
American Politics 5	Political Science II.
Cookery 3	Household Science XI

Students desiring to elect thesis work in the department of chemistry must take Course V in chemistry during the third term of the Junior year.

SENIOR YEAR.

FIRST TERM.

Economics 5	Political Science I.
Aesthetics 5	Household Science XII.
German 5, or,	German IV.
Latin 5	Latin IV.

†*Electives.*

Literature 5	English X.
Botany 5, 7	Botany IV.
Zoology 5, 7	Zoology V.
Bacteriology 5, 7	Bacteriology I.
Elocution 1, 2	Elocution IV.
Drawing 2½, 5	Drawing IV.
Chemistry of Foods 5, 7	Chemistry XII.
Geology 5	Geology I.

SECOND TERM.

Psychology 5	Mental Science I.
German 5, or,	German V.
Latin 5	Latin V.
Aesthetics 5	Household Science XIII.

†*Electives.*

Physics 3, 7	Physics I.
Physical Laboratory 2, 4	Physics IV.
Chemistry of Foods 5, 7	Chemistry XIII.
Zoology 5, 7	Zoology VI.
Botany 5, 7	Botany V.
Elocution 1, 2	Elocution V.
Drawing 2½ 5	Drawing V.
Bacteriology 5, 7	Bacteriology II.
Literature 5	English XI.

THIRD TERM.

Domestic Lectures 5	Household Science XIV.
German 5, or,	German VI.
Latin 5	Latin VI.

[†] *Electives.*

Literature 5	English XII.
Physics 3	Physics II.
Physical Laboratory 2, 4	Physics IV.
Chemistry of Foods 5, 7	Chemistry XIV.
Zoology 5, 7	Zoology VII.
Botany 5, 7	Botany VI.
Elocution 1, 2	Elocution VI.
Drawing 2½, 5	Drawing VI.
Astronomy 5	Mathematics XI.
Bacteriology 5, 7	Bacteriology III.
Landscape Gardening 5	Floriculture IV.

[†] In addition to the regular studies seniors must select from the electives enough hours to form a full course of 22 hours, counting thesis 5 hours for last two terms.

A student may upon obtaining written consent of the heads of departments interested, substitute higher mathematics for any other branch of study.

COURSE IN MECHANICAL ENGINEERING

FRESHMAN YEAR.

FIRST TERM.

Algebra 5	Mathematics I.
English Composition 5	English I.
General History 5	History I.
Freehand Drawing 1½, 3	Drawing I.
* Elocution 1, 2	Elocution I.
Woodwork 2½, 5	Shopwork I.
Military Drill 2½, 5	Military I.

SECOND TERM.

Geometry 5	Mathematics IV.
English Composition 5	English II.
*General History 5	History II.
Elocution 1, 2	Elocution II.
Freehand Drawing 1½, 3	Drawing II.
Woodwork 2½, 5	Shopwork II.
Military Drill 2½, 5	Military II.
Physical Culture 1, 2	Physical Culture I.

THIRD TERM.

Geometry 5	Mathematics V.
Composition and Rhetoric 5	English III.
Modern History 5	History IV.
*Freehand Drawing 2½, 5	Drawing III.
Woodwork 2½, 5	Shopwork III.
Military Drill 2½, 5	Military III.

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* Latin may be elected instead, but no credit will be given towards graduation for less than the full course of six terms.

SOPHOMORE YEAR.

FIRST TERM.

Trigonometry 5	Mathematics VI.
Rhetoric 5	English IV.
Mechanical Drawing 5, 10	Mechanical Engineering I.
*Blacksmithing 2½, 5	Shopwork IV.
Military Drill 2½, 5	Military IV.

SECOND TERM.

Algebra 5	Mathematics II.
Physics 3	Physics I.
Physical Laboratory 2, 4	Physics III.
Rhetoric 4	English V.
*Mechanical Drawing 2½, 5	Mechanical Engineering II.
Blacksmithing 2½, 5	Shopwork V.
Military Drill 2½, 5	Military V.
Physical Culture 1, 2	Physical Culture II.

THIRD TERM.

Algebra 5	Mathematics III.
Physics 3	Physics II.
Physical Laboratory	Physics IV.
English Literature 5	English VI.
Mechanical Drawing 1½, 3	Mechanical Engineering III.
Blacksmithing 2½, 5	Shopwork VI.
*Military Drill 2½, 5	Military VI.

§JUNIOR YEAR.

FIRST TERM.

General Chemistry 5, 7	Chemistry I.
*Literature 5	English VII.
Analytical Geometry 5	Mathematics VII.
Descriptive Geometry 5	Mechanical Engineering V.
Machine Shop 2½, 5	Shopwork VII.
Military Drill 2½, 5	Military VII.
Military Science 1	Military Science I.

SECOND TERM.

General Chemistry 5, 7	Chemistry II.
Materials of Engineering 3	Mechanical Engineering XX.
* Descriptive Geometry 1½, 3	Mechanical Engineering VI.
Calculus 5	Mathematics VIII.
Machine Shop 2½, 5	Shopwork VIII.
Military Drill 2½, 5	Military IX.
Military Science 1	Military Science II.

THIRD TERM.

Mechanism 5, 7	Mechanical Engineering IV.
Calculus 5	Mathematics IX.
Steam Engines and Boilers 4,	Mechanical Engineering VII.
American Politics 5	Political Science II.
*Machine Shop 2, 4	Shopwork IX.
Military Drill 2½, 5	Military XI.
Military Science 1	Military Science III.

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§Students wishing to specialize in electrical engineering may elect to do so at the beginning of the junior year.

SENIOR YEAR.

FIRST TERM.

Economics 5	Political Science I.
Mechanics of Engineering 5,	Mechanical Engineering VIII.
Physics 5, 7	Physics V.
German 5, or,	German I.
French 5	French I.
Military Drill 2½, 5	Military XII.
Military Science 1	Military Science IV.

†*Electives.*

Literature 5	English X.
Woodwork 2½, 5	Shopwork X.
Ironwork 2½, 5	Shopwork XI.
Mechanical Drawing 2½, 5	Mechanical Engineering X.
Mineralogy 3, 6	Mineralogy I.

SECOND TERM.

Psychology 5	Mental Science I.
Mechanics of Engineering 5,	Mechanical Engineering XII.
German 5, or,	German II.
French 5	French II.
Military Drill 2½, 5	Military XIV.
Military Science 1	Military Science V.

†*Electives.*

Literature 5	English XI.
Structure of Woods and Metals 5, 7	Botany XI.
Woodwork 2½, 5	Shopwork XII.
Ironwork 2½, 5	Shopwork XIII.
Mechanical Drawing 2½, 5	Mechanical Engineering XIII.
Assaying 3, 6	Mineralogy IV.
Elocution 1, 2	Elocution V.

THIRD TERM.

Mechanics of Engineering 5	Mechanical Engineering XIV.
German 5, or,	German III.
French 5	French III.
Military Drill 2½, 5	Military XVI.
Military Science 1	Military Science VI.

†*Electives.*

Astronomy 5	Mathematics XI.
American Literature 5	English IX.
Surveying 5, 9	Civil Engineering IV.
Woodwork 2½, 5	Shopwork XIV.
Ironwork 2½, 5	Shopwork XV.
Mechanical Drawing 2½, 5	Mechanical Engineering XVI.
Assaying 3, 6	Mineralogy V.

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† In addition to the regular studies seniors must select from the electives enough hours to form a full course of 22 hours, counting thesis 5 hours for last two terms.

GRADUATE YEAR.

FIRST TERM.

German 5, or	German I
French 5	French I
Hydraulic Motors 3	Mechanical Engineering XXI
Thermodynamics 5	Mechanical Engineering IX
Experimental Engineering 2, 4	Mechanical Eng. XXIV

SECOND TERM.

German 5 or	German II
French 5	French II
Machine Design 5, 7	Mechanical Engineering XI
Internal Combustion Engines 3	Mechanical Eng. XXII
Experimental Engineering 2, 4	Mechanical Eng. XXV

THIRD TERM.

German 5 or,	German III
French 5	French III
Machine Design 5, 7	Mechanical Engineering XV
Power Plants and Transmis. of Power 3	Mech. Eng. XXIII
Experimental Engineering 2, 4	Mechanical Eng. XXVI

JUNIOR YEAR—ELECTRICAL.

FIRST TERM.

Electricity and Magnetism 6, 9	Electrical Engineering I.
Descriptive Geometry 5	Mechanical Engineering V.
Analytical Geometry 5	Mathematics VII.
General Chemistry 5, 7	Chemistry I.
*Machine Shop 2½, 5	Shopwork VII.
Military Drill 2½, 5	Military VII.
Military Science 1	Military Science I.

SECOND TERM.

Electricity and Magnetism 5, 7	Electrical Engineering II.
General Chemistry 5, 7	Chemistry II.
*Descriptive Geometry 1½, 3	Mechanical Engineering VI.
Calculus 5	Mathematics VIII.
Machine Shop 2½, 5	Shopwork VIII.
Military Drill 2½, 5	Military IX.
Military Science 1	Military Science II.

THIRD TERM.

Calculus 5	Mathematics IX.
Electricity and Magnetism 3	Electrical Engineering III.
Steam Engines and Boilers 4	Mechanical Engineering VII.
American Politics 5	Political Science II.
Mechanism 5, 7	Mechanical Engineering IV.
Machine Shop 2, 4	Shopwork IX.
Military Drill 2½, 5	Military XI.
Military Science 1	Military Science III.

SENIOR YEAR.

FIRST TERM.

Economics 5	Political Science I.
Mechanics of Engineering 5	Mechanical Engineering VIII.
Alternating Currents and Dynamo Design 5, 7	Electrical Engineering IV.
German 5, or	German I.
French 5	French I.
Military Drill 2½, 5	Military XII.
Military Science 1	Military Science IV.

† *Electives.*

Literature 5	English X.
Woodwork 2½, 5	Shopwork X.
Ironwork 2½, 5	Shopwork XI.
Mechanical Drawing 2½, 5	Mechanical Engineering X.
Mineralogy 3, 6	Mineralogy I.

SECOND TERM.

Psychology 5	Mental Science I.
Mechanics of Engineering 5	Mechanical Engineering XII.
Alternating Currents and Dynamo Design 5, 7	Electrical Engineering V.
German 5, or	German II.
French 5	French II.
Military Drill 2½, 5	Military XIV.
Military Science 1	Military Science V.

† *Electives.*

Woodwork 2½, 5	Shopwork XII.
Ironwork 2½, 5	Shopwork XIII.
Mechanical Drawing 2½, 5	Mechanical Engineering XIII.

†Assaying 3, 6	Mineralogy IV.
Elocution 1, 2	Elocution V.
Literature 5	English XI.

THIRD TERM.

Mechanics of Engineering 5	Mechanical Engineering XIV.
Alternating Currents and Dynamo Design 5, 7	Electrical Engineering VI.
German 5, or	German III.
French 5	French III.
‡Military Drill 2½, 5	Military XVI.
Military Science 1	Military Science VI.

†*Electives.*

Astronomy 5	Mathematics XI.
American Literature, 5	English IX.
Surveying 5, 9	Civil Engineering IV.
Woodwork 2½, 5	Shopwork XIV.
Ironwork 2½, 5	Shopwork XV.
Mechanical Drawing 2½, 5	Mechanical Engineering XIV.
Assaying 3, 6	Mineralogy V.

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† Students electing Assaying must have previously taken Mineralogy I.

‡ Seniors who accept commissions as cadet officers are required to drill during the third term.

In addition to the regular studies seniors must select from the electives enough hours to form a full course of 22 hours, counting thesis five hours for last two terms.

GRADUATE YEAR.

FIRST TERM.

German 5 or	German IV
French 5	French IV
Thermodynamics 5	Mechanical Engineering IX
Advanced Alternat. Cur. Theory 5, 7	Electrical Eng. VII

SECOND TERM.

German 5 or	German V
French 5	French V
Machine Design 5, 7	Mechanical Engineering XI
Advanced Alternat. Cur. Theory 5, 7	Electrical Eng. VIII

THIRD TERM.

German 5 or	German VI
French 5	French VI
Machine Design 5, 7	Mechanical Engineering XV
Advanced Alternat. Cur. Theory 5, 7	Electrical Eng. IX

COURSE IN PHARMACY.

FRESHMAN YEAR.

FIRST TERM.

‡Algebra 5	Mathematics I.
‡English Composition 5	English I.
General History 5	History I.
‡Latin 5	Latin I.
Freehand Drawing 1½, 3	Drawing I.
Elocution 1, 2	Elocution I.
‡ †Military Drill 2½, 5	Military I.

SECOND TERM.

Geometry 5	Mathematics IVa.
‡English Composition 5	English II.
‡Latin 5	Latin II.
General History 5	History II.
Freehand Drawing 1½, 3	Drawing II.
Elocution 1, 2	Elocution II.
‡Military Drill 2½, 5	Military II.
‡Physical Culture 1, 2	Physical Culture I.

THIRD TERM.

Geometry 5	Mathematics Va.
‡Composition and Rhetoric 5	English III.
‡Latin 5	Latin III.
Plant Morphology 5, 7	Botany I.
‡Military Drill 2½, 5	Military III.

† Throughout the course young ladies take Physical Culture instead.

‡ Students desiring to take a short course in Pharmacy will be given a certificate in Pharmacy after completing the studies marked (‡).

SOPHOMORE YEAR.

FIRST TERM.

‡General Chemistry 5, 7	Chemistry I.
Rhetoric 5	English IV.
German 5	German I.
Plant Histology 5, 7	Botany II.
‡Military Drill 2½, 5	Military IV.

SECOND TERM.

Physics 3	Physics I.
Physical Laboratory 2, 4	Physics III.
Rhetoric 4	English V.
German 5	German II.
‡General Chemistry 5, 7	Chemistry II.
‡Military Drill 2½, 5	Military V.
Physical Culture 1, 2	Physical Culture I.

THIRD TERM.

German 5	German III.
Zoology 5, 7	Zoology I.
‡Qualitative Analysis 5, 10	Chemistry XV.
Physics 3	Physics II.
Physical Laboratory 2, 4	Physics IV.
‡Military Drill 2½, 5	Military VI.

JUNIOR YEAR.

FIRST TERM.

Literature 5	English VII.
‡Qualitative Analysis5	Chemistry XVI.
‡Therapeutics and Doses 2	Pharmacy V.
‡Pharmacy 2	Pharmacy II.
‡Nomenclature 1	Pharmacy VI.
German 5	German IV.
Military Drill 2½, 5	Military VII.
Military Science 1	Military Science I.

SECOND TERM.

‡Organic Chemistry 5, 7	Chemistry XVII.
‡Pharmacognosy 2	Pharmacy III.
Vertebrate Anatomy 5, 7	Zoology III.
‡Pharmacy 3, 5	Pharmacy IV.
Literature 5	English VIII.
German 5	German V.
Military Drill 2½, 5	Military IX.
Military Science 1	Military Science II.

THIRD TERM.

‡Quantitative Analysis 5, 10	Chemistry V.
Physiology 5, 7	Zoology IV.
Plant Classification 5, 7	Botany VII.
‡Pharmacognosy 2	Pharmacy I.
‡Pharmacy 3, 5	Pharmacy VII.
German 5	German VI.
Military Drill 2½ 5	Military XI.
Military Science 1	Military Science III.

SENIOR YEAR.

FIRST TERM.

‡Materia Medica and Therapeutics 3...... Pharmacy VIII.
‡Operative Pharmacy 4, 6................ Pharmacy IX.
‡Pharmaceutical Analysis 5, 10......... Chemistry XVIII.
Bacteriology 5, 7......................... Bacteriology I.
Military Drill 2½, 5........................ Military XII.
Military Science 1................. Military Science IV.

SECOND TERM.

‡Materia Medica and Therapeutics 3...... Pharmacy XIV.
‡Prescription Practice 4½, 7................ Pharmacy X.
‡Pharmaceutical Analysis 5, 10.......... Chemistry XIX.
Bacteriology 5, 7........................ Bacteriology II.
Military Drill 2½, 5........................ Military XIV.
Military Science 1.................. Military Science V.

THIRD TERM.

‡Pharmacognosy and Synonyms 3.......... Pharmacy XI.
‡Prescription Practice 5½, 8............... Pharmacy XV.
‡Toxicology 1.......................... Pharmacy XIII.
‡Pharmaceutical Analysis 5, 10........... Chemistry XX.
Bacteriology 5, 7...................... Bacteriology III.
Military Drill 2½, 5....................... Military XVI.
Military Science 1................. Military Science VI.

A student may upon obtaining written consent of the heads of departments interested, substitute higher mathematics for any other branch of study.

COURSE IN CIVIL ENGINEERING.

FRESHMAN YEAR.

FIRST TERM.

Algebra 5	Mathematics I
English Composition 5	English I
General History 5	History I
*Freehand Drawing 1½, 3	Drawing I
*Elocution 1, 2	Elocution I
Woodwork 2½, 5	Shopwork I
Military Drill 2½, 5	Military I

SECOND TERM.

Geometry 5	Mathematics IV
English Composition 5	English II
*General History 5	History II
Freehand Drawing 1½, 3	Drawing II
Elocution 1, 2	Elocution II
Woodwork 2½, 5	Shopwork II
Military Drill 2½, 5	Military II
Physical Culture 1, 2	Physical Culture I

THIRD TERM.

Geometry 5	Mathematics V
Composition and Rhetoric 5	English III
Modern History 5	History III
*Freehand Drawing 2½, 5	Drawing III
Woodwork 5	Shopwork III
Military Drill 2½, 5	Military III

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*Latin may be elected instead, but no credit will be given toward graduation for less than the full course of six terms.

SOPHOMORE YEAR.

FIRST TERM.

General Chemistry 5, 7	Chemistry I
Trigonometry 5	Mathematics VI
Rhetoric 5	English IV
*Mechanical Drawing 5, 10	Mechanical Engineering I
Blacksmithing 2½, 5	Shopwork V
Military Drill 2½, 5	Military IV

SECOND TERM.

Physics 3	Physics I
Physical Laboratory 2, 4	Physics III
Algebra 5	Mathematics II
General Chemistry 5, 7	Chemistry II
*Mechanical Drawing 2½, 5	Mechanical Engineering II
Surveying 5, 7	Civil Engineering I
Military Drill 2½, 5	Military V
Physical Culture 1, 2	Physical Culture II

THIRD TERM.

Physics 3	Physics II
Physical Laboratory 2, 4	Physics IV
*Algebra 5	Mathematics III
Surveying 5, 10	Civil Engineering II
Qualitative Analysis 5, 10	Chemistry XV
Military Drill 2½, 5	Military VI

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*Latin may be elected instead, but no credit will be given toward graduation for less than the full course of six terms.

JUNIOR YEAR.

FIRST TERM.

Surveying 3, 6	Civil Engineering III
Analytical Geometry 5	Mathematics VII
*Descriptive Geometry 5	Mechanical Engineering V
Machine Shop 1½, 2½	Shopwork VII
Geology 5	Geology I
Military Drill 2½, 5	Military VII
Military Science 1	Military Science I

SECOND TERM.

Railroads 5, 7	Civil Engineering V
Geology 5	Geology II
*Descriptive Geometry 1½, 3	Mechanical Ennineering XI
Calculus 5	Mathematics VIII
Machine Shop 2½, 5	Shopwork VIII
Military Drill 2½, 5	Military IX
Military Science 1	Military Science II
Materials of Engineering 3	Mechanical Engineering XX

THIRD TERM.

Calculus 5	Mathematics IX
Steam Engines and Boilers 4	Mechanical Engineering VII
*American Politics	Political Science II
Railroads 5, 8	Civil Engineering VI
Military Drill 2½, 5	Military XI
Military Science 1	Military Science III

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* Latin or German may be elected instead, but no credit will be given toward graduation for less than the full course of six terms.

SENIOR YEAR.

FIRST TERM.

German 5 or	German I
French 5	French I
Mechanics of Engineering 5	Mechanical Engineering VIII
Highway Construction 5, 7	Civil Engineering VII
Physics 3½, 7	Physics V
Military Drill 2½, 5	Military XII
Military Science 1	Military Science IV

SECOND TERM.

German 5 or	German II
French 5	French II
Highway Construction 5, 9	Civil Engineering VIII
Psychology 5	Mental Science I
Mechanics of Engineering 5	Mechanical Engineering XII
Military Drill 2½, 5	Military XIV
Military Science 1	Military Science V

THIRD TERM.

Mining Engineering 5	Mathematics XV
German 5 or	German III
French 5	French III
Mechanics of Engineering 5	Mechanical Engineering XIV
Masonry Construction and Foundations 5	Civil Eng. IX
Military Drill 2½, 5	Military XVI
Military Science 1	Military Science VI

GRADUATE YEAR.

FALL TERM.

Roofs and Bridges 5, 7	Civil Engineering XI
German 5 or	German IV
French 5	French IV

‡Thesis 3; †Electives 5

WINTER TERM.

Roofs and Bridges 5, 7	Civil Engineering XII
Sanitary Engineering 4, 7	Civil Engineering XVI
German 5 or	German V
French 5	French V

‡Thesis 3; †Electives 2

SPRING TERM.

Water Supply Engineering 5, 8	Civil Engineering XVII
German 5 or	German VI
French 5	French VI
Contracts and Specifications 2	Civil Engineering XVIII

‡Thesis 3; †Electives 3

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‡Subject for thesis to be chosen by student and approved by the head of the Department of Civil Engineering not later than October 1.

†To be selected from the Mechanical, Electrical or Mining Courses subject to the approval of the Professor of Civil Engineering.

‡ COURSE IN MINING.

FRESHMAN YEAR.

FIRST TERM.

†Algebra 5	Mathematics I.
†English Composition 5	English I.
†General History 5	History I.
*Freehand Drawing 1½, 3	Drawing I.
*Elocution 1, 2	Elocution I.
†Woodwork 2½, 5	Shopwork I.
†Military Drill 2½, 5	Military I.

SECOND TERM

Geometry 5	Mathematics IV.
†English Composition 5	English II
General History 5	History II.
*Freehand Drawing 1½, 3	Drawing II.
Elocution 1, 2	Elocution II.
†Woodwork 2½, 5	Shopwork II.
†Military Drill 2½, 5	Military II.
†Physical Culture 1, 2	Physical Culture I.

THIRD TERM.

Geometry 5	Mathematics V.
†Composition and Rhetoric 5	English III.
Modern History 5	History III.
*Freehand Drawing 2½, 5	Drawing III.
Woodwork 5	Shopwork III
†Military Drill 2½, 5	Military III.

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‡ Students desiring to take a short course in mining will be given a certificate in mining after completing the studies marked [†]

* Latin may be elected instead, but no credit will be given toward graduation for less than the full course of six terms.

SOPHOMORE YEAR.

FIRST TERM.

General Chemistry 5, 7	Chemistry I.
Trigonometry 5	Mathematics VI.
†Rhetoric 5	English IV.
*Mechanical Drawing 5, 10	Mechanical Engineering I.
†Blacksmithing 2½, 5	Shopwork IV.
†Military Drill 2½, 5	Military IV.

SECOND TERM.

Physics 3.	Physics I.
Physical Laboratory 2, 4	Physics III.
Algebra 5	Mathematics II.
General Chemistry 5, 7	Chemistry II.
*Mechanical Drawing 2½, 5	Mechanical Engineering II.
†Surveying 5, 7	Civil Engineering I
†Military Drill 2½, 5	Military V.
Physical Culture 1, 2	Physical Culture II.

THIRD TERM.

Physics 3	Physics II.
Physical Laboratory 2, 4	Physics IV.
*Algebra 5	Mathematics III.
Surveying 5, 10	Civil Engineering II
Qualitative Analysis 5, 10	Chemistry XV.
†Military Drill 2½, 5	Military VI.

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* Latin may be elected instead, but no credit will be given toward graduation for less than he full course of six terms.

JUNIOR YEAR.

FIRST TERM.

Surveying 3, 6	Civil Engineering III.
Analytical Geometry 5	Mathematics VII.
*Descriptive Geometry 5	Mechanical Engineering V.
†Machine Shop 1½, 2½	Shopwork VII.
†Geology 5	Geology I.
Military Drill 2½, 5	Military VII.
Military Science 1	Military Science I.

SECOND TERM.

Metallurgy of Iron 5	Metallurgy I.
†Geology 5	Geology II.
*Descriptive Geometry 1½, 3	Mechanical Engineering XI.
Calculus 5	Mathematics VIII.
†Machine Shop 2½, 5	Shopwork VIII.
Military Drill 2½, 5	Military IX.
Military Science 1	Military Science II.

THIRD TERM.

Calculus 5	Mathematics IX.
Steam Engines and Boilers 4	Mech. Engineering VII.
*American Politics 5	Political Science II.
†Mineralogy 5, 7	Mineralogy I.
Military Drill 2½, 5	Military XI.
Military Science 1	Military Science III.

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*Latin or German may be elected instead, but no credit will be given toward graduation for less than the full course of six terms.

SENIOR YEAR.

FIRST TERM.

†Mineralogy 5, 7	Mineralogy II.
Mechanics of Engineering 5	Mechanical Engineering VIII.
Economics 5	Political Science I.
German 5 or	German I.
French 5	French I.
Military Drill 2½, 5	Military XII.
Military Science 1	Military Science IV.

SECOND TERM.

Mineralogy 5, 7	Mineralogy III.
†Assaying 3, 6	Chemistry IX.
German 5 or	German II.
French 5	French II.
Mechanics of Engineering 5	Mechanical Engineering XII.
Military Drill 2½, 5	Military XIV.
Military Science 1	Military Science V.

THIRD TERM.

Mining Engineering 5	Mining Engineering XV.
†Assaying 3, 6	Chemistry X.
Mechanics of Engineering 5	Mechanical Engineering XIV.
German 5 or	German III.
French 5	French III.
Military Drill 2½, 5	Military XVI.
Military Science 1	Military Science VI.

GRADUATE YEAR.

FIRST TERM.

German 5 or	German IV
French 5	French IV
Physics 5	Physics V
General Metallurgy 5	Metallurgy I
Thesis 2.	

SECOND TERM.

German 5 or	German V
French 5	French V
Psychology 5	Mental Science I
Special Processes 5	Metallurgy II
Thesis 2.	

THIRD TERM.

German 5 or	German VI
French 5	French VI
Metallurgy of Iron and Steel 5	Metallurgy III
Metallurgical Practice 5	Metallurgy IV
Thesis 2.	

LITERARY COMMERCE COURSE.

FRESHMAN YEAR.

FIRST TERM.

General History 5	History I.
English Composition 5	English I.
Commercial Arithmetic 5	Arithmetic I.
Algebra 5	Mathematics I.
Elocution 1, 2	Elocution I.
Military Drill 2½, 5	Military I.
Physical Culture 1½, 3	Physical Culture I.

SECOND TERM.

General History 5	History II.
English Composition 5	English II.
Commercial Arithmetic 5	Arithmetic II.
Geometry 5	Mathematics IV.
Elocution 1, 2	Elocution II.
Military Drill 2½, 5	Military II.
Physical Culture 1½, 3	Physical Culture II.

THIRD TERM.

Modern History 5	History IV.
Composition and Rhetoric 5	English III.
Commercial Arithmetic 5	Arithmetic III.
Geometry 5	Mathematics V.
Penmanship 3	Penmanship I.
Military Drill 2½, 5	Military III.
Physical Culture 1½, 3	Physical Culture III.

SOPHOMORE YEAR.

FIRST TERM.

Bookkeeping 5	Bookkeeping I.
Latin 5 or	Latin I.
German 5	German I.
Rhetoric 5	English IV.
Penmanship 3	Penmanship II.
Floriculture 2, 3	Floriculture I.
Military Drill 2½, 5	Military IV.
Physical Culture 1½, 3	Physical Culture IV.

SECOND TERM.

Bookkeeping 5	Bookkeeping II.
Latin 5 or	Latin II.
German 5	German II.
Rhetoric 5	English V.
Penmanship 3	Penmanship III
Algebra 5	Mathematics II.
Military Drill 2½, 5	Military V.
Physical Culture 1½, 3	Physical Culture V.

THIRD TERM.

Bookkeeping 5	Bookkeeping III.
Latin 5 or	Latin III.
German 5	German III.
Penmanship 3	Penmanship IV.
Algebra 5	Mathematics III.
Physiology 5, 7	Zoology IV.
Military Drill 2½, 5	Military VI.
Physical Culture 1½, 3	Physical Culture VI.

JUNIOR YEAR.

FIRST TERM.

Bookkeeping 3	Bookkeeping IV.
Latin 5, or,	Latin IV.
German 5	German IV.
English 5	English VII.
Penmanship 3	Penmanship V.
Stenography 4	Stenography I.
Typewriting 4	Typewriting I.
Military Drill 2½, 5	Military VII.
Military Science 1	Military Science I.
Physical Culture 1½, 3	Physical Culture VII.

SECOND TERM.

Bookkeeping 3	Bookkeeping V.
Latin 5, or,	Latin V.
German 5	German V.
Penmanship 3	Penmanship VI.
Stenography 4	Stenography II.
Typewriting 4	Typewriting II.
English 5	English VIII.
Military Drill 2½, 5	Military VIII.
Military Science 1	Military Science II.
Physical Culture 1½, 3	Physical Culture VIII.

THIRD TERM.

Bookkeeping 3	Bookkeeping VI.
Latin 5, or,	Latin VI.
German 5	German VI.
Penmanship 3	Penmanship VII
American Politics 5	Civics I.
Stenography 4	Stenography III.
Typewriting 4	Typewriting III.
Military Science 1	Military Science III.
Military Drill 2½, 5	Military IX
Physical Culture 2½, 5	Physical Culture IX.

SENIOR YEAR.

FIRST TERM.

Economics 5	Political Science I.
Commercial Law 3	Commercial Law I.
English 5	English X.
Aesthetics 5	Household Science XII.
Military Science 1	Military Science IV.
Military Drill 2½, 5	Military X.
Physical Culture ¾, 1½	Physical Culture X.

SECOND TERM.

Commercial Law 3	Commercial Law II.
English 5	English XI.
History of Eastern Nations 5	History III.
Psychology 5	Mental Science I.
Military Science 1	Military V.
Military Drill 2½, 5	Military XI.
Physical Culture ¾, 1½	Physical Culture XI.

THIRD TERM.

Stenography 3	Stenography IV.
Typewriting 2	Typewriting IV.
Plant Morphology 5, 7	Botany I.
English 5	English IX.
Military Science 1	Military Science VI.
Military Drill 2½, 5	Military XII.
Physical Culture 2½, 5	Physical Culture XII.

A student may upon obtaining written consent of the heads of departments interested, substitute higher mathematics for any other branch of study.

COURSE IN FORESTRY.

FRESHMAN YEAR.

Forestry I throughout the year.

FIRST TERM.

Algebra 5	Mathematics I
English Composition 5	English I
Bookkeeping 5	Bookkeeping I
Woodwork 2½, 5	Shopwork I
Freehand Drawing 2½, 5	Drawing I
Declamation 2	Elocution I
Military Drill 2½, 5	Military I

SECOND TERM.

Geometry 5	Mathematics IV
English Composition 5	English II
Bookkeeping 5	Bookkeeping II
Woodwork 2½, 5	Shopwork II
Freehand Drawing 2½	Drawing II
Declamation 2	Elocution II
Military Drill 2½, 5	Military II

THIRD TERM.

Geometry 5	Mathematics V
Composition and Rhetoric 5	English III
Plant Morphology and Ecology 5, 7	Botany I
Woodwork 2½, 5	Shopwork III
Breeds of Stock 5	Agriculture I
Military Drill 2½, 5	Military III

SOPHOMORE YEAR.

Forestry I throughout the year.

FIRST TERM.

Rhetoric 5	English IV
Trigonometry 5	Mathematics VI
Inorganic Chemistry 5, 7	Chemistry I
Plant Histology 6	Botany II
Sylviculture 1	Forestry IV
Woodwork 2½, 5	Shopwork IV
Military Drill 2½, 5	Military IV

SECOND TERM.

Rhetoric 5	English V
Inorganic Chemistry 5, 7	Chemistry II
Surveying 10	Civil Engineering I
Plant Physiology 6	Botany III
Sylviculture 1	Forestry IV
Woodwork 2½, 5	Shopwork V
Military Drill 2½, 5	Military V

THIRD TERM.

Qualitative and Technical Chemistry 5, 7	Chemistry III, IV
Surveying 10	Civil Engineering II
Plant Classification and Phyto-geography 6	Botany IV
Invertebrate 5, 7	Zoology I
Sylviculture 1	Forestry IV
Woodwork 2½, 5	Shopwork VI
Military Drill 2½, 5	Military VI

JUNIOR YEAR.

Forestry II throughout the year.

At the close of the third term all students report for assignment to "Summer Camp" work.

FIRST TERM.

German 5 or	German I
French 5	French I
Forest Entomology 5, 7	Zoology II
The Forest 2	Forestry V
Surveying 6	Civil Engineering III
Mechanical Drawing 2	Drawing IV
Typewriting 3	Typewriting I
Military Drill 2½, 5	Military VII
Military Science 1	Military Science I

SECOND TERM.

German 5 or	German II
French 5	French II
Vertebrate Anatomy 5, 7	Zoology III
Elements of Physics 5, 7	Physics I
Physiography 5	Geography I
Typewriting 3	Typewriting II
Military Drill 2½, 5	Military VIII
Military Science 1	Military Science II

THIRD TERM.

German 5 or	German III
French 5	French III
Physiography and Climatology 5	Geography II, III
Elements of Physics 5, 7	Physics II
Dendrology 5	Forestry VI
Soils and Waters 2½	Agriculture IV
Military Drill 2½, 5	Military IX
Military Science 1	Military Science III

SENIOR YEAR.

Forestry III throughout the year.
At the close of the third term all students report for assignment to "Summer Camp" work.

FIRST TERM.

German 5, or	German IV
French 5	French IV
Economics 5	Political Science I
Cryptogamic Botany 5, 7	Botany V
Forest Finance 3	Forestry VII
Elements of Geology 5	Geology I
Military Drill 2½, 5	Military X
Military Science 1	Military Science IV

SECOND TERM.

German 5, or	German V
French 5	French V
Technical; Forest By-products 5, 7	Chemistry XXX
Plant Pathology 5	Botany V
Forest Industries 5	Forestry VIII
Psychology 5	Mental Science I
Military Drill 2½, 5	Military XI
Military Science 1	Military Science V

THIRD TERM.

German 5, or	German VI
French 5	French VI
American Politics 5	Political Science II
Physiology 5, 7	Zoology IV
Forest Economics 2½	Forestry IX
Stock Breeding 4	Agriculture VI
Enginery and Quarrying 4	Mechanical Engineering XVII
Military Drill 2½, 5	Military XI
Military Science 1	Military Science VI

GRADUATE YEAR.

Forestry III throughout the year.

FIRST TERM.

Technical Reading 5	Language VII
Road Construction 5, 9	Civil Engineering VII
Timber Technology 5	Forestry X
Original Investigation 5, 7	Research I
Commercial Law 3	Law I

SECOND TERM.

Technical Reading 5	Language VIII
Highway Construction 5, 9	Civil Engineering VIII
Industries and Commerce 5	History VI
Lumbering 5	Forestry XI
Original Investigation 5, 7	Research II
Civic Actions 1	Law II

THIRD TERM.

Forest Policy and Protection 5	Forestry XII
Veterinary 5	Agriculture IX
Original Investigation 5, 7	Research III
Land Records 3	Business III
Fish and Game 4	Zoology V

DEPARTMENTS OF INSTRUCTION.

MENTAL AND POLITICAL SCIENCE.
AGRICULTURE.
HISTORY AND LATIN.
HOUSEHOLD SCIENCE.
MODERN LANGUAGES.
MECHANICAL AND ELECTRICAL ENGINEERING
CHEMISTRY AND PHARMACY.
ENGLISH LANGUAGE AND LITERATURE.
MATHEMATICS AND ENGINEERING.
ZOOLOGY.
BOTANY AND FORESTRY.
ELOCUTION.
FLORICULTURE AND GARDENING.
HORTICULTURE.
BACTERIOLOGY.
DRAWING.
MILITARY.
PHYSICAL CULTURE.
MINING.
LITERARY COMMERCE.
MUSIC.

MENTAL AND POLITICAL SCIENCE.

THOMAS M. GATCH, A. M., PH. D.

Course I.—*Economics*.—Senior year; first term. During the first part of the term our aim is to familiarize the student with the principles of the science. The last part of the term is devoted principally to debates, informal discussions and theme work. Our library is well supplied with reference books in this department. Students are encouraged in original investigation. The labor question, socialism, taxation, money and tariff receive attention. Five hours a week. Fetter, with Lectures.

Course II.—*American Politics*.—Junior year; third term. The construction of various articles and clauses of the Constitution of the United States has led to party differences. The Constitution can be best studied when taken in connection with the history of political parties. The study, thus conducted, approaches the laboratory method, the most practical and satisfactory of all methods, where it can be employed. It is of interest to the whole republic that young citizens should be able to learn that true national party differences have a history and a recognized basis of existence, and should be prevented from following factitious party differences, contrived for personal objects of selfish men. Five hours a week. Johnston's "History of American Politics," wlth lectures.

Course III.—*Psychology*.—Senior year; second term. This study presupposes a considerable acquaintance with the structure and functions of the brain and nervous system. Students acquire this knowledge in the laboratory under the direction of the professor of zoology. The intellectual faculties, the sensibilities and the will are carefully studied; the various schools of philosophy are criticised and compared and themes are often required from members of the class. Five hours a week. Lectures principally, with Buell's "Essentials" as a guide.

AGRICULTURE.

JAMES WITHYCOMBE, M. Agr., Professor of Agriculture.
F. L. KENT, B. Agr., Associate Professor of Agriculture.
W. J. KENT, Foreman.

The object sought throughout the entire agricultural course is to familiarize the student with the art and science of agriculture. This embraces the study of zoology, botany, chemistry and bacteriology, the sciences related to agriculture; and the supplementary studies of mathematics, economics, physics, history, language and other cultural branches, all of which broaden the course of study and tend to elevate the educated farmer to the intellectual level of other professions.

The college laboratories are strictly modern in their appointments and are supplied with the latest equipments, which afford the student unusual opportunities for making a thorough study of all the sciences related to agriculture.

While the theory of agriculture, as based upon the sciences, is taught, the industrial side is not overlooked. Instruction is given in wood and iron work in the carpenter and blacksmith shops under competent supervision. The student is also taught how to handle and care for steam machinery, and is made thoroughly familiar with the mechanism of the farm traction engine.

The instruction given in the class-room is directly supplemented by actual demonstrations of the best agricultural practice on the college farm, thus giving to the student an opportunity to observe the methods employed, and enabling him to note from time to time the results of the practical applications of science to agricultural methods.

The college and station farm consists of 220 acres, 140 of which are devoted to farm crops, pasture, and experimental purposes. The farm is equipped with dairy building, horse-barn, cattle-barn, silos, piggery, tool-house, engine-house, and with typical specimens of several breeds of stock.

Students laboring on the farm and in the gardens, receive from 12½ to 20 cents per hour. Only comparatively few persons can be so employed, as the amount of work to be done is limited. Those only who by their work prove to be valuable laborers will be employed.

DAIRYING.

One of the purposes of the Oregon Agricultural College is to advance the business industries of the state. It is believed that dairying is one of the most important lines of work that can now be undertaken in Oregon. There are large bodies of land in the state which are especially adapted to this industry. For this reason dairying has been introduced as a branch of study in the agricultural course. Modern laboratories have been provided for such instruction and fitted up with all the necessary machinery for carrying on the work in the most approved way. An expert dairyman is in charge of this work.

All students in the agricultural department will be required to study dairying not only as a science but as an art. Those taking the household science course will have the same opportunities as the agricultural students.

This is a line of practical work which, it is believed, will prove of great advantage both to the student and to the state. The practical instruction includes both butter and cheese making.

A short course has been provided, as described elsewhere in the catalogue, whereby practical instruction in dairying may be obtained by those who can not avail themselves of a college course.

The instruction in applied agriculture extends through the freshman, sophomore, junior and senior years, as shown in the following synopsis of courses:

Course I.—*Breeds of Stock.*—Freshman year; third term. The study of the history of the different classes of farm stock, their origin and characteristics. By means of charts, in the class-room the student is made familiar with the different points of animal form preparatory to the use of the score-card system for judging farm animals. This is followed by a practical application of this system in judging dairy cows, beef cattle, mutton sheep and swine. In this manner the student obtains useful information relative to animal form and function, and thus becomes acquainted with the points of excellence in the typical pure bred, as well as the points of merit in the animal designed for the butcher's block. Five hours a week. Brooks' "Agriculture," Vol. III.

Course II —*Theoretical Dairying.*—Sophomore year; second term. The principles of modern dairy practice will be taught in the classroom. Instruction will be given by textbook and lectures. Five hours a week for one half term.—Snyder's "Dairy Chemistry."

Course III.—*Soils and Manures.*—Sophomore year; second term. The origin and formation of soils; soil tillage; management and application of manures; green manuring; organic and mineral manures; soil exhaustion; rotation of crops, and methods of improving worn-out soils. Five hours a week for one half term. Brooks' "Agriculture," Vol. I.

Course IV.—*Irrigation and Drainage.*—Sophomore year; third term. In the discussion of this subject it will be the aim to deal with those relations of water to soils and to plants which must be grasped in order to permit of a rational practice of applying, removing or conserving soil moisture in crop production. The subject will be considered from the standpoints of the farmer, the fruit grower and the gardener rather than from that of the engineer. The various methods of applying water; the laying out and construction of farm drains; and the effect of irrigation and drainage on the chemical and physical conditions of the soil will be considered. Five hours a week.

Course V.—*Dairying.*—Junior year; first term. (*a*) Practical work in the dairy for agricultural students. The principles taught in the sophomore year will be put into practice in the actual work of the manufacture of butter and cheese. The Babcock test, rennet tests, and curd tests, as well as the subjects of creamery accounting will receive due attention. Five hours a week.

(*b*) Practical work in the dairy for household science students. This work is essentially the same as above. Wing's "Milk and its Products" will also be used as a text during a portion of the term. Five hours a week throughout the third term.

Course VI.—*Stock Feeding and Breeding.*—Senior year; second term. Stock feeding covers the subject of rations for milk and meat production; how best balanced for economical feeding. Stock breeding covers the subjects of atavism, heredity, in-and-in-breeding, variation, prepotency and care of breeding animals. Opportunity is given for judging and scoring live stock, and for studying the essential points of breeds adapted to different purposes. Four hours a week. Shaw, Animal Breeding.

Course VII— *Veterinary Science.*—Senior year; third term. This subject will be taught by lectures covering the anatomy of the horse, and taking up the diseases most common to domestic animals, giving causes, symptoms, and treatment for the same. Special stress is placed upon proper treatment to prevent disease in domestic animals. Five lectures a week. Reynold's "Veterinary Studies."

Course VIII.—*Farm Mechanics.*—Graduate year; first term. The location and arrangement of farm buildings, their cost and construction. The different kinds of fences, their cost, construction, and desirability. The construction, efficiency and durability of various field tools and machinery. Also a study of the principles involved in the operation of gasoline engines, windmills, pumps, feed cutters, grinders and other farm machinery operated by other power than horses.

Course IX.—*Farm Management.*—Graduate year; second term. A study of the different systems of diversified farming; the application of business methods to farm operations; division of the farm into fields, and crop management; executive and commercial problems on large and small farms; the management of farm help; number and character of live stock as affecting the economic management of the farm; relation of farming to other occupations; qualifications and requirements for the farm manager. Five hours a week.

Course X.—*Live Stock Management.*—Graduate year; third term. General management of the various classes of live stock, including a careful study of pedigrees of some leading families of the different breeds; requirements for advanced registration; comparative stock judging in groups, similar to state and county fair work; also comparison of methods of handling live stock in various parts of the state, in various states and foreign countries. Five hours a week.

Instruction is given largely by lectures, suitable books being selected for reference. Miles' book on drainage. Curtis' "Horses, Cattle, Sheep, and Swine." Warfield's "Cattle Breeding," Stewart's "Stock Feeding." Armsby's Manual of Cattle Feeding. Shaw's "Study of Breeds." "Soil," King. "Physics ot Agriculture," King. "Feeds and Feeding," Henry.

HISTORY AND LATIN.

J. B. HORNER, A. M., LITT. D., Professor.
HARRY BEARD, B. S., Instructor in General History.
MARK D. MCCALLISTER, B. S., Instructor in U. S. History.

HISTORY.

Course I.—*Greek and Roman History.*—Freshman year; first term. Includes the study of general Hellenic development; the Athenian leadership; the Hellenistic or Alexandrian conquests and kingdoms. The political organizations of republican Rome in the prae- and post-Punic periods. Study of the pagan empire; Teutonic migrations. The Christian empire under Roman control. Five hours a week.

Course II.—*Mediæval History.*—Freshman year; second term. A study of social and political institutions of the fifth to the fifteenth centuries. Five hours a week.

Course III.—*History of Eastern Peoples.*—Sophomore year; second term. A survey of the history of China, Japan and India. Religion, arts and general culture of Egypt, Chaldæa, Assyria, Babylonia, Persia. Five hours a week.

Course IV.—*Modern History.*—Sophomore year; third term. This is a study of the era of the reformation and renaissance. (1453-1648). A general study of the age of Louis XIV., Frederick the Great, Anne and the Georges, Maria Theresa, and Peter the Great. The great French revolution and the wars of Napoleon. The states-general of 1789 to the congress of Vienna, 1815. German and Italian freedom and unity. Discussions touching the material progress of the age; famous works of art; foundations, inventions, discoveries, enterprises, improvements and investigations. Five hours a week.

The college is supplied with maps, charts, and a good working library of historical reference books.

In addition to the individual work of the student, as outlined above, lectures are given on the more important periods, such as the great reformation, thirty years' war, the English reformation, and the French revolution. Textbook, Myers' Ancient History in Courses I and III, Myers' Medæval and Modern History in Courses II and IV.

LATIN.

Course I.—Freshman year; first term. First eighty-five pages of Collar & Daniel's "First Year Latin," also synopsis of regular verb in each of the four conjugations.

Course II.—Freshman year; second term. Same textbook continued to page 151 with frequent reviews; also exercises in composition.

Course III.—Freshman year; third term. Irregular verbs. Conditional sentences. Periphrastic conjugation, etc. Caesar—Book II.

Course IV.—Sophomore year; first term. Caesar—Book I.—Roberts' edition. Allen & Greenough's Latin Grammar.

Course V.—Sophomore year; second term. Cicero's Orations. Allen & Greenough's Grammar.

Course VI.—Sophomore year; third term. Aeneid—Collar's edition. Allen & Greenough's Grammar.

If at any time there is a demand, classes desiring to pursue the study of Latin beyond Course VI may do so upon making application. The first year's instruction is largely grammatical, prominence being given to Latin writing as the best method of acquiring a mastery of the language, Latin composition is eminently helpful in scientific research, and it is suggestive to the student of English. This preliminary work done, the student is then trained to appreciate the literature. Attention is called, during the reading of various authors, to those numerous problems in the history, thought and institutions of the Romans which illustrate similar phenomena noticeable among ourselves. The contribution of the Romans to the language, literature, and institutions of our time is so great that a thorough acquaintance with their life is of the highest educational value.

HOUSEHOLD SCIENCE.

MARGARET C. SNELL, M. D., Professor.
MARY SUTHERLAD, B. S., Assistant in Sewing.

Self interest and public interest make it apparent to every intelligent person how greatly in need are subjects pertaining to the home of being "touched to fine issues;" hence their introduction as studies into college curricula.

We have been reviled as "the most common schooled, and least cultivated, among all civilized nations," and this largely through our deplorable indifference to, and ignorance of, the common facts and necessities of life.

"The home as we find it to-day has scant warrant that anything born of its teaching is worth while to impart, yet the problem grows of how to get better results, how to lessen the labor of the farmer's wife, the washer-woman, the cook, the boarding-house keeper, the city missionary, the school teacher, the woman of fashion."

The solution requires something more than the knitting of the brow over theories; there must be actual testing of these theories by practice in the college laboratory, if they are to have value and permanence. The precious acquisition of the scholar who *knows*, must be further supplemented by that of the artist who *does*.

The various subjects pertaining to home life are taught under the following heads:

Course I.—*General Hygiene.*— Freshman year; first term. Good health is acknowledged as one of the prime factors of success in life; lectures and talks on this important subject are not neglected. The amenities of home, and readings on kindred topics, give mental occupation to the sewing hour. One hour a week.

Courses II, IV, V.—*Sewing*.—Freshman year. During the first term there are sewing lectures and practice work, one hour a day, on sewing samples. Here are acquired and strengthened those invisible impulses: industry, dexterity, patience, exactness. Five hours a week.

Second term, sewing continued. Five hours a week.

During the third term sewing is combined with the making of simple garments. Readings, conversation.

Courses VI, VII, VIII.—*Dressmaking*.—Sophomore year. Cleverness with scissors, tape line, and needle finds in dressmaking, millinery, home furnishing, a large field for the application of art principles to the living, moving canvas of actual life.

Instruction in dressmaking is an important branch of domestic science. Lectures will be given on the following subjects: The methods of manufacturing thread, cloths and other dressmaking material; hygienic principles of dressmaking; study and sketching of drapery; history of costume, etc.

During the first term the work includes draughting and making simple skirts, cutting, fitting and making lined waists from patterns; a study of the texture of goods. Five hours a week.

Throughout the second and third terms instruction is given in draughting and making lined waists, matching stripes and plaids, study of woolen textiles. Five hours a week. Home Sanitation and kindred topics one hour a week.

Courses IX, X, XI.—*Cookery*.—Junior year. The first term's work includes instruction in canning of fruits, one-half term; three lectures; one hour a week practice work in the kitchen laboratory; technological cookery; preparatory work in chemistry of foods. Two hours a week. Laboratory fee, $1.50

The second term—practice in cookery, two hours per week, fee $1.50.

The third term—practice in cookery, two hours per week, fee $1.50

Course III.—*Etiquette.*—Freshman year; second term. Lectures and talks on social forms and usages; the art of entertaining.

Course XII.—*Aesthetics.*—Senior year; first term. Lectures and recitations on the subject of aesthetics. "Aesthetics," Day.

This term is given to the general subject of aesthetics in its relations to the subjective and objective world; the kinds and laws of beauty; class readings from various authors on aesthetics; the application of aesthetic principles to discourse as we find it illustrated in the great master pieces of literature. Five hours a week.

Course XIII.—*Aesthetics.*—Senior year; second term. Application of aesthetic principles to the remaining fine arts, with a study of the best authors on these varied subjects. The three arts receiving especial attention during the coming year will be discourse, architecture and painting. Five hours a week.

Course XIV.—*Domestic Lectures.*—Senior year; third term. The term's work will include lectures on the following subjects: Special hygiene, including parentage, care of children, heredity, etc.; sanitation of the home; home furnishing; emergency lectures; fireside practice, etc. Five hours a week.

Course XIV—Helen Campbell's "Household Economics," and Pomeroy's "Ethics of Marriage." Five hours a week must be given to reading aloud, in class room, the best literature. Lectures will be given on poultry raising and bee keeping.

GERMAN.

GERARD TAILLANDIER.

Opportunity to study German is offered throughout the different courses and is compulsory in the course in pharmacy during the sophomore and junior years. We teach in a large measure by the conversational method, and aim to bring the student so far that he can read with ease and facility, and understand so much of the language as will be most helpful to him in practical life. A knowledge of German is a business possession of undoubted value for any young man, or young woman.

Courses I, II, III.—*Elementary German.*—Collar's Eysenbach—German grammar; First German Reader, Muller and Wenckebach's Glück Auf. Hewett's German Reader.

Courses IV, V and VI.—*Advanced German*; Jagemann's German Syntax, Bronson's Colloquial German, Hewett's German Reader. Selection from Schiller's Dramas Wilhelm Tell and Maria Stuart. Selected prose works of modern writers.

Courses VII and VIII—Scientific German Reader. Works on scientific subjects.

MECHANICAL AND ELECTRICAL ENGINEERING.

GRANT A. COVELL, M. E., Professor.
JOHN HYNES McDOUGAL, A. B., Assistant.
M. CLYDE PHILLIPS, B. M. E., Instructor in Ironwork and Drawing.
MARK DOW McCALLISTER, B. S., Instructor in Woodwork.
WILLIAM MACAULY PORTER, Instructor in Blacksmithing.

Students in this department are allowed to choose either the course in mechanical engineering or the course in electrical engineering. Each course leads to the degree of Bachelor of Science, and the two courses are identical until the beginning of the junior year.

The course in mechanical engineering is intended especially for young men who expect to choose an industrial vocation and for those who are already, or expect to be, connected with some of the manufacturing establishments of the country.

The course in electrical engineering is designed to meet the needs of those who desire to turn their attention towards electrical science, the designing, the installation and the management of electric light and power plants, etc.

The shops are well equipped with tools and machinery from the best makers in the country; the idea being not only to have the shops well supplied with the necessary tools but also to make each shop a model as regards quality of equipment and systematic arrangement.

The uses of the various tools in the shop are taught by a series of exercise pieces which the student is required to make. After completing the exercises, the regular work consists in building and repairing machinery in the machine shop, mending farm implements. and making tools in the blacksmith shop, and other useful articles in the wood shop. So far as possible, all work in the shops is executed from drawings and blue prints, which must be followed accurately.

In the drafting room the student begins with linear drawing and follows a progressive course until he is able to make complete working drawings of whole machines, and finally he is encouraged to produce designs of his own and to make complete drawings and blue prints of them.

The scientific principles involved in machines and mechanical movements are taught in the class-room, as well as the application of mathematics to problems in mechanical engineering. The student is required to solve original problems and to depend upon his own judgment and ingenuity as far as possible.

EQUIPMENT.

The machine shop is equipped with one 24″ x 24″ iron planer, one universal milling machine, one universal tool grinder, one radial drill, one 20″ drill press, one 20″ engine lathe, one 16″ engine lathe, three 14″ engine lathes, one 15″ shaper, one emery grinder, two 10″ speed lathes, twelve bench vises, and numerous small tools, such as hammers, chisels, drills, reamers, taps and dies.

The blacksmith shop contains twenty stationary forges operated by an electric motor fan. Each forge is provided with anvil, hammers and tongs. The shop also contains two vises, a swedge block and a full set of swedges, fullers, and heading tools.

The woodshop contains one 4″ four-sided moulder, one 24″ surface planer, one iron saw table with rip and cut-off saws, one band saw, one jig saw, one 20″ pattern-maker's lathe, one post boring machine, four 12″ wood-turning lathes, and twenty hand benches, each equipped with a set of tools consisting of saws, planes, chisels and other small tools. Power is supplied by a 10 horse power electric motor.

The power house is combined with the heating plant and contains one 54 inch and two 60 inch tubular boilers with pumps, injectors and feed water heater. The electrical equipment consists of two 12½ kilowatt direct current generators and one 30 kilowatt alternator, all driven by a 40 horse power, high speed, automatic engine. The direct current generators operate the motors in the several shops and laboratories, while the alternator furnishes lights for the College buildings and grounds.

The steam, electrical and heating plants of the college furnish opportunity for much valuable experimental work in engineering, such as tests of boilers, engines, dynamos, motors, fans, pumps and injectors. The department is supplied with indicators, gauges, planimeters and other instruments to facilitate this work.

A Riehle testing machine of 50,000 pounds capacity, operated by an independent motor, affords means of testing the strength of metals, woods, stones or brick.

The following is an outline of the work done in the mechanical department:

SHOPWORK.

Courses I, II and III.—*Woodwork.*—Freshman year. A course in woodwork which includes carpentery, joinery and wood-turning, also the care and use of tools. Five hours a week throughout the year.

Courses IV, V and VI.—*Blacksmithing.*—Sophomore year. In this course the student is taught how to make and manage a forge fire; to shape iron by bending, drawing, upsetting and welding, and finally to make and temper cutting tools for the shops. Five hours a week.

Course VII.—*Machine Shop.*—Junior year; first term.

This course is devoted principally to chipping, filing, polishing and hand work. Five hours a week.

Courses VIII and IX.--*Machine Shop.*—Junior year; second and third terms. These include a series of exercise pieces in turning, shaping, milling and drilling which the student is required to make from drawings. Five and four hours a week respectively.

Courses X, XII and XIV—*Woodwork.*—Senior year. These courses are elective and are intended for students who desire to specialize in this branch. Particular attention is given to the care and management of wood-working machines and to pattern-making. Five hours a week throughout the year.

Courses XI, XIII and XV.—*Ironwork.*—Senior year. These are elective courses and follow course IX. The work consists of constructing parts of machines, repair work, and making tools for the shops. Five hours a week throughout the year.

MECHANICAL ENGINEERING.

Courses I, II and III.—*Mechanical Drawing.*—Sophomore year. In these courses the student begins at once to make mechanical drawings of simple objects and finally makes sketches of machines from which working drawings are made. Ten hours, the first term; five hours the second term and three hours the third term.

Course IV.—*Mechanism.*—Junior year; third term. This course treats of the motion of machine parts, and is introductory to the course in machine design. Seven hours a week.

Courses V and VI.—*Descriptive Geometry.*—Junior year; first and second terms. The work in these courses is largely drawing. It involves the solution of problems in projection and intersection of lines, surfaces and solids. Five and three hours a week respectively.

Course VII.—*Steam Engines and Boilers.*—Junior year; third term. A study of the construction, care and operation of steam engines and boilers; recitations and lectures. Four hours a week.

Course IX.—*Thermodynamics.*—Graduate year; first term. Steam and other engines considered as heat engines. Five hours a week.

Courses VIII, XII and XIV.—*Mechanics of Engineering.*—Senior year. A course in applied mechanics. The first two terms are occupied with a discussion of statical and dynamical problems. During the last term the strength of materials is studied with special reference to beams, girders and trusses; also the mechanics of fluids relating to pressure, flow and carrying capacity of pipes and open ditches. Open only to those who have completed Mathematics VIII and IX. Five hours a week throughout the year.

Courses XI and XV.—*Machine Design.*—Graduate year; second and third terms. A course applying the principles brought out in the courses in mechanism and mechanics to the design and construction of machine parts. Numerous practical problems are solved, the data for many of them being taken from machines used in the college, so that the student may compare his results with those used in practice. Considerable draughting is done in connection with this course. Seven hours a week.

Course XX.—*Materials of Engineering.*—Junior year. A study of the materials used in engineering structures. Lectures and recitations upon the manufacture and physical properties of iron, steel, brick and cement, and their adaptability to the purposes of engineering construction. Timber and stone are also discussed with reference to their uses as materials of engineering. Three hours a week.

Course XXI.—*Hydraulic Motors.*—Graduate year; first term. Lectures and recitations on the leading types of turbines and other motors; also including centrifugal pumps. Three hours a week.

Course XXII.—*Internal Combustion Engines.*—Graduate year; second term. Lectures and recitations upon gas, gasoline and oil engines. Three hours a week.

Course XXIII. *Power Plants and Transmission of Power.*—Graduate year; third term. Lectures and recitations on the mechanical engineering of central power plants and power transmission. Three hours a week.

Courses XXIV, XXV and XXVI.—*Experimental Engineering.*—Graduate year. A course in mechanical laboratory work extending through the year.

During the Fall term the work consists in calibrating instruments and testing materials in tension, compression, flexure, torsion and shearing; also testing of oils and lubricants.

During the Winter term the work consists in calorimeter tests for determining the quality of steam, steam boiler tests to determine evaporative efficiency, steam engine tests with indicator and brake to determine horse power and mechanical efficiency; also tests of steam gauges, pumps and injectors.

In the Spring term dynamometer tests will be made to determine the power required to drive different machines under working conditions, as well as tests of fans, blowers and motors. Six hours a week.

PHYSICS.

Courses I and II.—*Elementary Physics.*—Sophomore year; second and third terms. These courses cover the usual topics of mechanics, heat, electricity and magnetism, sound and light. Instruction is given by means of lectures and recitations. Three hours a week.

Courses III and IV.--*Elementary Laboratory Work.*—Sophomore year; second and third terms. These are laboratory courses required in conjunction with courses I and II. Students are required to perform a series of experiments in the laboratory, draw their own conclusions and submit a written report to the instructor. Four hours a week.

Course V.—*Physics.*—Senior year; first term. A laboratory course, which is a continuation of the preceding courses, and deals more especially with experiments in heat, light, sound and electricity. Six hours a week.

ELECTRICAL ENGINEERING.

Courses I, II and III.—*Electricity and Magnetism.*—Junior year; first, second and third terms. Dealing with the general theory of electricity and magnetism and their most common application; such as the telephone, telegraph, electro-plating, electric lighting, etc. Special attention is given to the study of the physical theory, actions and reactions in the armature, magnetic principles, and winding of continuous current dynamos and motors. Considerable time is spent in the calculation of low tension distributing systems. During the last term of laboratory work considerable time will be spent on the calibration and use of ammeters, voltmeters and wattmeters, and in running factory and laboratory tests on direct current dynamos and motors. Seven hours a week first and second terms; three hours a week third term.

Courses IV, V and VI.—(a) *Alternating currents.*—Senior year; first term. Being a brief development of the elementary theory of alternating currents, using both the graphical and analytical methods of calculation. A continuation of courses I, II and III. Open only to those who have completed Mathematics VIII and IX. Lectures and recitations. Three hours a week.

(b) *Dynamo Design.*—Second term.—Theory and practice of the design of direct and alternating current dynamos and motors, including calculation and construction of field magnets, armatures, commutators, etc. Lectures and recitations, supplemented by the making of models in the laboratory. Three hours a week.

(c) *Practical Electrical Engineering.*—Third term.—Considerable time will be devoted to practical engineering problems, such as the calculation of circuits, installation of lighting and power plants, power transmissions, etc. Three hours a week.

(d) *Laboratory.*—Systematic tests on alternators, synchronous motors, rotaries, transformers, and induction motors. Laboratory and factory methods of taking and recording results. Four hours a week throughout the year.

Courses VII, VIII and IX —*Advanced Alternating Current Theory* —Dealing with the theory of alternating current dynamos, motors, transformers, polyphase systems, long-distance line problems, etc. Courses I, II, III, IV, V, VI prerequisite. Seven hours a week throughout the year.

TEXT BOOKS.

BOOKS.	AUTHOR.	PUBLISHER.
Physical Laboratory Manual	Chute	D. C. Heath
High School Physics	Carhart & Chute	Allyn & Bacon
Technical Mechanics	E. R. Maurer	Wiley & Son
The Strength of Materials	Merriman	Wiley & Son
Descriptive Geometry	Ferris	Americ'n Book Co.
A Practical Course in Mechanical Drawing	Fox & Thomas	Van Nostrand Co.
Machine Design, Part I	Jones	Wiley & Son
Electricity and Magnetism	Sylvanus Thompson	MacMillan
Dynamo Electric Machinery	Sheldon,	
Alternating Current Machines	Sheldon & Mason	Van Nostrand Co.
Elements of Electrical Engineering	Steinmetz	McGraw Pub. Co.

CHEMISTRY AND PHARMACY.

A. L. KNISELY, M. S., Professor.
JOHN FULTON, B. S., Associate Professor.
C. M. MCKELLIPS, PH. G., PH. C., Instructor.
FRANK E. EDWARDS, B. M. E., Instructor.
CHESTER LLOYD PROEBSTEL, B. S., Assistant.

EQUIPMENT.

The Department of Chemistry occupies the entire south wing of Agricultural Hall. The various laboratories, lecture and recitation rooms are equipped for thorough, accurate work.

On the first floor are located the storeroom for chemicals and apparatus, and the laboratory for general and qualitative chemistry. This laboratory is supplied with gas, water and sinks to accommodate 100 students. A series of hoods extend along one side of the laboratory so as to keep the air in the room free from noxious gases and fumes.

The laboratory for careful quantitative analysis is located on the second floor. This laboratory is completely equipped for the work intended. A chemical library and balance room joins this laboratory. The chemical department of the college is equipped with two torsion balances, two high grade assay balances and four analytical balances.

On the third floor is located the lecture and recitation room for general chemistry; this room is provided with raised seats and has a seating capacity for 150 students. The lecture table in this room is supplied with gas, water and electric wires of sufficient size for a stereopticon or electric furnace. On this floor are also two small recitation rooms, each capable of accommodating 20 to 25 students.

A dark room is available whenever work is being carried on with the polariscope or spectroscope.

One room on the third floor is available when the subject of gas analysis is being studied.

All recitation and lecture rooms are supplied with desks, gas and water so that at all times the instructor in charge can fully illustrate the subject under consideration.

CHEMISTRY.

The study of chemistry is begun in the first term of the sophomore year. Prerequisite, Freshman mathematics.

Course I.—*General Inorganic Chemistry.*— Non-metals.— Sophomore year; first term. A daily exercise throughout the first term is devoted to recitations, lectures and laboratory practice. In this course special attention is given to the fundamental principles of the science, which are suitably illustrated either by experiments performed by the student in the laboratory, or, when too intricate and expensive of time, by the instructor before the class in the lecture room. The elements are discussed individually as well as their more important compounds.

The *practicum* of this course consists of a series of laboratory exercises dealing with the elements studied and is designed to introduce the student to chemical manipulation. Seven hours a week.

Course II.—*General Inorganic Chemistry.*—Sophomore year; second term. The study of the metals is entered upon in the second term and is conducted similarly to the study of the non-metals. The more important metals are individually discussed under the following heads: history, occurrence in nature, properties, preparation, uses, tests, and compounds. Special attention is given to metals and their compounds which are of industrial importance.

The laboratory work of the second term consists of a study of the properties of the metals, being an introduction to qualitative analysis. This course must be preceded by Chemistry I. Seven hours a week.

Course XXV.—*Stoichiometry.*—A course in chemical arithmetic designed for students who take analytical chemistry. This course is given at irregular intervals.

Course IV.—*Agricultural Chemistry.*—Junior year; first term. This course deals with the more intimate relation of the science to agriculture. Such topics as soil composition, elements essential to plant growth, soil exhaustion, fertilizers; chemistry of cattle foods, nutrition, dairy products and food adulteration are dealt with as fully as time permits. Prerequisites, Chemistry I, II and III. Seven hours a week.

Course XXI.—*Agricultural Chemistry.*—Junior year; second term. This is a continuation of course IV and extends through the second term. Seven hours a week.

Course V—*Elementary Quantitative Analysis.*—Junior year; third term. The student is required to make the ordinary fundamental determinations of moisture, aluminum, calcium, magnesium, copper, lead, potash, sulfuric acid, phosphoric acid, chlorine, and carbonic acid by gravimetric processes; estimations by volumetric methods including alkalimetry, acidimetry, precipitation, and oxidation will be undertaken. The work is so planned as to familiarize the student with the standard gravimetric and volumetric methods. This is a required course for all pharmacy students and is elective for students who have completed chemistry I, II and XV. Ten hours a week.

Courses VI, VII, VIII.—*Advanced Quantitative Analysis.*—Senior year; first, second and third terms. A continuation of course V. This work extends throughout the senior year and is arranged especially for students electing theses in the department of chemistry. Elective. Ten hours a week.

Course IX.—*Technical Analysis.*—Arranged for fifth year students, This course extends throughout the year, and consists of such subjects as gas analysis, iron and steel analysis; also the chemistry of manufacturing processes.

Prerequisites VI, VII, VIII.—Fifteen hours a week.

Course X.—*Technical Chemistry.*—Arranged for students in forestry. Consists of chemistry of various woods. Products of the destructive distillation of wood and kindred topics.

Prerequisite Course V. Ten hours a week.

Course XI.—*Chemistry of Common Life.*—Sophomore year; third term. This is a course treating of organic compounds of common life. This work is required of all students in household science course. Prerequisites chemistry I, II. Seven hours a week.

Courses XII, XIII and XIV.—*Chemistry of Foods.*—Senior year. An elective extending through the senior year in the household science course. It is an expansion of the work in course XI, but limited to a study of foods from a chemical and scientific standpoint. This work must be preceded by chemistry V. Seven hours a week.

Course XV.—*Qualitative Analysis.*—Sophomore year; third term. This course is designed for students in pharmacy, mining and agriculture. It gives practice in the analysis of unknown mixtures and chemical compounds for bases. Prerequisites chemistry I, II. Ten hours a week.

Course XVI.—*Qualitative Analysis.*—Junior year; Fall term. A continuation of course XV, consisting of analysis of unknown mixtures and chemical compounds for acids and bases. Ten hours a week.

Course XVII.—*Organic Chemistry.*—Junior year; second term. This subject is designed for students of the pharmacy course. Prerequisites I, II, XV, XVI. Seven hours a week.

Courses XVIII, XIX, XX.—*Pharmaceutical Analysis.*—Senior year; first, second and third terms. This work consists of advanced qualitative and quantitative analysis, both organic and inorganic. Under this head are taken up the separation, identification and determination of the active constituents of alkaloidal drugs and galenical preparations. During the spring term practical laboratory work in Toxicology is given. Ten hours a week.

Course XXII.—*Soil Physics.*—Senior year; third term. The work will include a study of various types of soils as to their mechanical structure and analysis; of conditions influencing temperature, capillary action and water-holding capacity of soil; effects of drainage and cultivation upon the conservation of moisture in soils; the texture of soils; the use of fertilizers and amendments and their effects on soils. Class room and laboratory work, seven hours a week.

THESES.

Undergraduates desiring to elect theses in the department of chemistry and pharmacy must have passed in one course of quantitative analysis.

GRADUATE ELECTIVES.

Elective work in chemistry is offered as a major or a minor subject for two years to candidates for the degree of Master of Science.

Advanced Analysis.—This course is intended for those who may desire to specialize in chemical work. It provides a greater variety of analytical work than can be given in courses V, VI, VII, VIII. It offers the following: analysis of limestone, coal, iron ores, milk, butter, cheese, water, urine, sugar, and various other materials. A student desiring to investigate along any particular line, as mineral, sanitary, or agricultural chemistry, may do so. This course is open as a major subject to students who have completed courses I, II, III or XV and V, VI, VII and VIII. In addition, a parallel course of reading must be taken, upon which the student will be required to pass a satisfactory examination at the end of the year. The work of the last year will be left largely to the student's choice, subject to the approval of the head of the department, and will serve as the basis for a graduation thesis. Hours to be arranged with the instructor.

PHARMACY.

In addition to the ordinary equipment in constant use in the pharmaceutical laboratory—mortars, percolators, evaporation dishes, graduates, beakers, pilltiles, spatulas, etc., the department is supplied with suppository moulds, compressors, drug mills, tablet triturate moulds, cachet and soft capsule filling and sealing apparatus, pill machine, pharmaceutical stills, etc.

Courses I and III.—*Pharmacognosy.*—Junior year; second and third terms. In these courses are considered both the gross structure and characteristics of the crude drugs and chemicals. The student is taught the appearance, taste, color, odor, fracture and habitat of the various crude drugs, and also receives careful drill on their Latin and English names. Special attention is directed toward the learning of the scientific classification of the vegetable drugs. The student has access to the specimens for study, and special effort is made to train the senses to the recognition of each of the drugs considered.

The pharmacognosy of the senior year consists in a thorough review of the work of the junior year and practice in the recognition of powders, liquids, chemicals, and pharmaceutical preparations. Two hours a week, Spring term.

Courses II, IV and VII.—*Pharmacy.*—Junior year. By means of a series of lectures and recitations during the first term, the student is made familiar with the nature and objects of the practice of pharmacy, as well as with the scientific principles underlying it. His attention is directed particularly to the various classes of Pharmacopœial preparations, beginning with those of the more simple character and gradually advancing until a thorough understanding is acquired concerning those of the most complex formulae.

Definitions are introduced wherever admissible, being supplemented by descriptive and theoretical considerations when necessary for a better understanding of the subject.

The work of the second and third terms is devoted largely to laboratory practice, during which time the student has ample opportunity for the practical application of the knowledge gained in the lecture room, and in the acquirement of pharmaceutical technique.

The preparations of the Pharmacopœia receive special attention, each student being required to make, independently, a sufficient number of these preparations to insure a thorough understanding of the processes and manipulations involved in their manufacture. Various unofficial preparations are also considered from time to time, especially those of the National Formulary.

The laboratory work is under the direct supervision of an experienced pharmacist and each student receives personal attention. The character of the instruction is such as will be of much practical benefit to the student in the subsequent event of his becoming a dispensing pharmacist. Two hours a week, first term, and five during second and third.

Course V.—*Therapeutics and Doses.*—Junior year; first term. The therapeutical uses of medicines serve as a basis for classifying them in a manner which will facilitate study. The definitions of medical terms are given special attention in the junior year. In this connection the student also learns the minimum and maximum doses of all remedial agents in active use in the modern practice of medicine. Two hours a week.

Course VI.—*Nomenclature.*—Junior year. In this connection the student is shown the practical application and use of the Latin language in the professions of medicine and pharmacy.

The Latin titles of the Pharmacopœia, National Formulary and the more common terms that occur in the prescription are made the subject of a series of recitations. One hour a week, first term.

Courses VIII and XIV.—*Materia Medica and Therapeutics.*—Senior year; first and second terms. All substances which find use in medicine are here studied one by one as to source, Latin and English names, formulae (in the case of chemicals), compounds and preparations, properties, method of preservation, industrial and domestic use, impurities and adulterations, antidote (in case of poisons) and dose.

In the consideration of crude organic drugs, attention is especially directed to the constituents responsible for the medicinal activity of the drug, e. g., alkaloids, glucosides, volatile oils, etc. Three hours a week.

Course IX.—*Operative Pharmacy.*—Senior year; first term. This course is a continuation of that of the junior year and includes such preparations of the Pharmacopœia and of the newer classes of remedies as were not considered in the junior year. Attention is given to the manufacture of the more difficult preparations, both galenical and toilet, and to the correct methods of manipulation involved in preparing medicines for dispensing in cachets, soft capsules, etc.

The composition of the more important Pharmacopœial preparations, and of the percentage strength of the active constituents of each, are made the subject of close study. The work of the term ends with a final review of the entire subject of pharmacy. Six hours a week.

Courses X and XV.—*Prescription Practice.*—Senior year. The recitation work consists of reading, interpreting, criticising prescriptions and calculating doses. During the third term a series of general quiz recitations is held. This is preparatory to the State Board examination. Special attention is given to incompatibilities and to the solubility of chemicals. Unsightly, dangerous and explosive mixtures are also considered under this head. In this laboratory course and that of operative pharmacy the student gains experience for the prescription counter, learning the difficulties there met with and how best to overcome them. He also gains in manipulative skill in making extemporaneous preparations.

Each student is required to personally perform the operations under the direct supervision of the instructor. The student works not from book prescriptions, but from prescriptions written in the ordinary practice of physicians and found on file in the drug stores. Seven hours a week second term and eight hours a week third term.

Course XI.—*Pharmacognosy and Synonyms.*—Senior year; third term. The pharmacognosy of the senior year consists in a thorough review of the work of the junior year and practice in the recognition of powders, liquids, chemicals, and pharmaceutical preparations.

In addition to the knowledge of the scientific classifications of the medicines already considered up to this time, the student is further instructed regarding many "common names," or synonyms, in general use in the ordinary practice of pharmacy. Three hours a week.

Course XIII.—*Toxicology.*—Senior year; third term. The important active poisons—both mineral and vegetable—are studied. Their physiological action, characteristic symptoms that follow their use, treatment and antidote are noted and commented upon. Attention is directed to the conditions and regulations provided by the Oregon Pharmacy law for the handling and sale of poisons within the state. One hour a week.

From time to time special lectures are given on hygiene, pharmaceutical jurisprudence, etc.

STATE EXAMINATION AND REGISTRATION.

At its meeting held on December 14, 1898, the Oregon State Board of Pharmacy passed the following resolutions endorsing the course here offered:

> WHEREAS, The Oregon State Agricultural College has established a course in pharmacy and chemistry that meets with the hearty approval of this Board, inasmuch as it offers a large proportion of practical work; therefore, be it
>
> *Resolved*, That the Oregon State Board of Pharmacy acting in accordance with Sections 5 and 6 of the Oregon Pharmacy Law as amended, grant to students of the Oregon Agricultural College, who complete the full course and hold a diploma from said institution, after they shall have been subjected to such examination, at Corvallis, Oregon, as this Board may approve, on the completion of the senior year, a certificate to act as a registered pharmacist in this state.
>
> *Provided*, That any student who may have taken the last two years of the course only and who does not hold the regular diploma from the said institution, on passing the examination aforesaid shall only be granted the certificate of a registered assistant.

The training in the pharmaceutical course is largely conducted in the laboratory for it is only by this means that the student can form an intimate personal acquaintance with the material and the best methods of manipulation. Thus it is that he receives systematic practice in dispensing, in the examination of drugs as to identity, purity, and strength, and in the manufacture of various preparations from crude drugs. The requirements of the U. S. Pharmacopœia are always kept in mind, and the student is always held strictly responsible for the purity of his preparations and the accuracy of his work. The course aims to teach students facts and principles of immediate use in the drug store, adapting the work to the needs of the practical pharmacist and manufacturing chemist. It is, however, further recognized that a thorough foundation must be laid for this work, and in view of this, two years of preparatory work are required in the college, or its equivalent in some other school. Students who have had equivalent work elsewhere can complete the course in pharmacy in two years.

EXPENSES IN CHEMISTRY AND PHARMACY.

Tuition is free at this institution, but to cover the cost of material used and wasted in the laboratories a small laboratory fee and a deposit for breakage will be charged in the chemical and pharmaceutical laboratories as is the custom in all institutions. These fees are payable each term strictly in advance.

Chemical laboratory: Courses I, II, III.

Material	$2.00
Deposit for breakage	1.00

Qualitative Analysis XV or Quantitative Analysis:

Material	$3.00
Deposit for breakage	2.00

Pharmaceutical Laboratory, per term:

Material	$3.00
Deposit for breakage	2.00

Laboratory work accompanying theses, per term:

Material	$3.00
Deposit for breakage	2.00

Text and reference books in chemistry: General Chemistry, Bradbury, Newell, Smith; Qualitative Analysis, Johnson and Prescott, Dennis and Whittlesey; Quantitative Analysis, Talbot, Smith and Cheever; Agricultural Chemistry, Johnson; Organic Chemistry, Remsen; Roscoe and Schorlemmer, Watt's Dictionary of Chemistry, Thorpe's Dictionary of Applied Chemistry, Thorpe's Industrial Chemistry, Wiley's Principles of Agricultural Chemistry; Fresenius, Crooke's Select Methods, Sutton's Volumetric Analysis, Stillman Engineering Chemistry; Technology of Paint and Varnish, Sabin; Chemistry of Manufacturing Processes, Blount and Bloxam; Food Inspection and Analysis, Leach; Microscopy of Vegetable Foods, Winton; Official Methods, etc.

Text and reference books in pharmacy and materia medica: Handbook of Pharmacy, Coblentz; Practice of Pharmacy, Remington; Quantitative Analysis, Sturmer and Vanderkleed; Organic Analysis, Prescott; The Art of Compounding, Scoville; Medical Chemistry, Bartley; Materia Medica, Culbreth; Morris, Hatcher and Sollmann, White and Wilcox; Dose Book, Hoak; U. S. Dispensatory; King's Dispensatory; U. S. Pharmacopœia; same, of Homœopathy; National Formulary. Numerous other books and trade journals are to be found in the college library and are accessible to students.

Note.—Students from other institutions will be given advanced credit as follows:

Bradbury General Chemistry, or its equivalent	Two terms
Williams General Chemistry, or its equivalent	One term
Dennis and Whittlesey Qualitative, or its equivalent	Two terms

ENGLISH LANGUAGE AND LITERATURE.

F. Berchtold, A. M., Professor.
Ida B. Callahan, B. S., Assistant Professor.
Harry Beard, B. S., Instructor.
Juanita Rosendorf, B. S., Reader.

English as a required study is found extending in most of our courses to, and including part of, the junior year. It is offered as an elective in two terms of the junior year, and in the senior year.

Courses S., B., F.—The course in preparatory English is designed to secure accuracy and freedom in expression. There is work in spelling, writing and simple grammatical constructions. Written exercises prepared under rules of form are constantly required, to obtain practice and secure confidence in expression. Whitney and Lockwood's English Grammar. "Kimball's Business Speller," "Elementary English Composition," "Practical Exercises in English," Huber G. Buehler.

It is well understood that the art of using one's native tongue correctly and forcibly is acquired for the most part through imitation and practice, and is not so much a matter of knowledge as of habit. To become familiar with good use, we must read the best literature; a student familiar with the best language of reputable writers and speakers will use good English without conscious effort. Indeed, good reading is indispensable to good speaking or writing; and rules and dictionaries are of little benefit without it.

Throughout the courses, therefore, there is required an amount of collateral reading equivalent to two books per term, or six per scholastic year. The student prepares condensive abstracts of these books, and supplements this work by selecting and memorizing from each book six short quotations embodying general truths.

The books to be read and studied in the subfreshman year are: Defoe's "Robinson Crusoe;" Bunyan's "Pilgrim's Progress;" Hughes' "Tom Brown's School Days;" Edward Everett Hale's "The Man Without a Country;" R. D. Blackmore's "Lorna Doone;" G. W. Cable's "The Cavalier."

Courses I, II, III.—*Composition and Rhetoric.*—Freshman year; first, second and third terms. Review of English grammar; review of punctuation. Daily practice in spelling. Description; narration. Collection of material for a theme. The study of words, the sentence, the paragraph. Figures of speech. The burden of these courses is description and narration. Extracts from classic literature are read and analyzed in class. Written reports are handed in, giving distinctive features in the description or method of movement in the narration. Short descriptions and narrations are written on demand in the class under limit. There are also constant recitations and exercises under grammatical rules and constructions to secure order and accuracy. The work, here as well as in all other courses in English, is done with a view to the increase of the student's vocabulary, and to develop ease and exactness of expression in his compositions. Lockwood and Emerson's "Composition and Rhetoric." Collateral reading. Books to be read and studied in the freshman year:

"The Sketch Book," Washington Irving.
"Sir Roger De Coverley," Joseph Addison.
"Silas Marner," George Eliot.
"The Merchant of Venice," William Shakespeare.
"Julius Cæsar," William Shakespeare.

Courses IV, V.—*Rhetoric.*—Sophomore year; first and second terms. This course is carried on co-ordinately with Baldwin's College Manual of Rhetoric. It emphasizes Criticism, Exposition and Argument.

A number of formal papers are required during the year. The subjects are assigned and the methods follow principles laid down by Baldwin, and Lockwood. Much attention is given to definition of terms and to making clear expositions of ideas contained in paper.

By way of review, many short exercises are also written under the simple fundamentals of composition and in study of sentence and paragraph structure. Collateral reading.

Course VI.—*English Literature.*—Sophomore year; third term. The long course of English literature necessitates the division of it into a number of periods marked by the presence of new and weighty influences. In each period there are a few writers that stand, by reason of their ability and enduring work, in positions of recognized preeminence. We aim to extend the study of the works of such writers —our classic authors—sufficiently far to include considerable fulness of biographical and critical detail.

Formative Period.—Chaucer, "Canterbury Tales:" Prologue and Knight's Tale.

First Creative Period.—Spencer, "Faery Queene." Cantos I and II. Bacon, Essays. Shakespeare, "Hamlet," "King Lear," "Henry V." Collateral reading.

Courses VII and VIII.—*English Literature.*—Junior year; first and second terms. Civil War Period: Of Milton's minor poems: "L'Allegro" and "Il Penseroso." The Restoration: Dryden, selections. Queen Anne Period: Addison. Pope, selections. Age of Johnson: Burns, selections. Goldsmith, "The Deserted Village." The Nineteenth Century: Scott, Byron, Wordsworth, Tennyson. Selections from each. Collateral reading.

Courses IX and X.—*American Literature.*—Junior year; third term, and senior year, first term. A study of the leading periods and principal writers of American literature, with particular emphasis of what is usually termed the First National Period, representing such authors as Irving, Cooper, Bryant, Poe, Emerson, Hawthorne, Longfellow, Lowell, Whittier and Holmes. Collateral reading as in other courses in English.

Courses XI and XII.—*Elective Courses in English Literature.*—Senior year; second and third terms. A critical study of four or five representative plays of Shakespeare and selections from Wordsworth, Tennyson and Browning. Papers on assigned topics and reports upon collateral reading are required throughout the courses.

MATHEMATICS, CIVIL AND MINING ENGINEERING

GORDON V. SKELTON, C. E., Professor.
CHARLES L. JOHNSON, B. S., Assistant Professor.
NICHOLAS TARTAR, Instructor.

MATHEMATICS.

The course in Mathematics includes such of its branches as the distinctive aims of this institution require, and conforms itself, in general, to that in use in the most successful agricultural colleges.

That the study may to the fullest extent strengthen and discipline the mind for connected, logical thought, thoroughness and accuracy are insisted upon at all times. In the class-room all principles and demonstrations must be presented in an orderly and logical manner. The constant aim is to cultivate the powers of insight, judgment, and originality.

Course I—*Algebra.*—Freshman year; first term. From quadratic equations on. This course is open to students who have completed the sub-freshman work and to new students who can satisfy the department that they are prepared for the work. A review of about ten days will be devoted to the topics that precede quadratic equations. Five hours a week.

Course II—*University Algebra.*—Sophomore year; second term. From ratio and proportion to theory of numbers. This course is open to all students who have successfully passed course I. Five hours a week.

Course III—*University Algebra.*—Sophomore year; third term. Form the theory of numbers on. This course is open

to students who have had courses I and II or their equivalent. Five hours a week.

Course IV—*Plane Geometry*—Freshman year; second term. This course includes all that is found in the first four books of plane geometry in any standard text, as Wentworth's. Special emphasis is laid upon definitions and principles. Original demonstrations are given and much time is devoted to "original" theorems and problems and at all times proofs and demonstrations are freely criticised and discussed in the class-room. Five hours a week.

Course V—*Plane, Solid and Spherical Geometry.*—Freshman year; third term. This course includes book V of plane geometry and all of solid and spherical geometry. Students must have had course IV before taking this. Five hours a week.

Course VI—*Trigonometry.*—Sophomore year; first term. Students must have had courses I, IV and V before taking this. Only enough time is given to spherical trigonometry to enable the student to solve the spherical triangle. Much time is devoted to practical triangulation and measurements. The department is supplied with all the necessary instruments which the students use under the direction of the instructor. Five hours a week.

Course VII—*Plane Analytical Geometry.*—Junior year; first term. This work is required of all students taking the mechanical, electrical, mining and civil engineering courses. The work embraces the subjects treated in Ashton's Analytic Geometry. Five hours a week.

Course VIII—*Differential Calculus.*—Junior year; second term. This course is required of the same students as is course VII. Among the topics considered are differentiation and applications, evaluation of indeterminate forms, ex-

pansion of functions, Taylor's and Maclaurin's theorems, maxima and minima, points of inflection, curvature, change of independent variable, functions of two or more variables, asymptotes, curve tracing, etc. Five hours a week.

Course IX—*Integral Calculus.*—Junior year; third term. Among the topics considered are direct integration, definite integrals and applications, integration of rational fractions, integration by rationalization, integration by parts, integration of trigonometric forms, etc.; applications to finding the lengths and areas of curves, surfaces and volumes of solids of revolution, etc.; double and triple integration and applications. In this course, as in course VIII, great stress is laid upon practical applications, and a large number of practical problems are solved. Five hours a week.

Course XI.—*Astronomy.*—Senior year; third term. That this most elevating and refining subject may be open to a greater number of students, it will be confined to descriptive astronomy and may be taken by students who have completed courses I to V, inclusive. Much time will be devoted to uranography. Five hours a week.

CIVIL AND MINING ENGINEERING.

Course I.—*Plane Surveying.*—Sophomore year; second term. This course includes recitations, lectures, field and office work in the theory and practice of plane surveying. Proper emphasis will be given to chain and tape surveying. The theory and construction of the different surveying instruments are studied and practice will be given in making their tests and adjustments. The United States public land surveys and land laws are studied. Form of field notes, method of balancing and plotting surveys, computing area, etc., will have due consideration. Students must have had

Courses in Mathematics from 1 to 5, inclusive, before taking this course. Three recitations and four hours office and field practice per week.

Course II.—*Plane Surveying.*—Sophomore year; third term. This course is a continuation of Course I, except that nearly the entire time will be spent in field practice making surveys, relocating lost corners, making surveys from given descriptions, subdividing land, city work, etc. Students must have had Course I before taking this. Ten hours per week.

Course III.—*Topographical Surveying.*—Junior year; first term. This course will include the execution of a complete topographical survey of a selected tract, including the office work such as the calculations, checks, platting and finishing the map. Prerequisites Courses I and II. Six hours per week; mainly field and office.

Course IV.—*Plane Surveying.*—Spring term; Junior year. This course is a condensation of Courses I and II and is designed for students pursuing the Agricultural course and for those of the Mechanical and Electrical courses who desire to elect it. The greater part of the time is spent by the student in the field with the various instruments. He is required to make surveys from descriptions given him as well as to write descriptions from surveys made by himself. In all cases notes must be carefully kept and worked up in the office.

Course V.—*Railroads.*—Junior year; second term. The theory of curves including the transition curve, earthwork computations, economic location, maintenance, etc. Three recitations and four hours office and field practice.

Course VI.—*Railroads.*—Junior year; third term. This course is a continuation of Course V and must be preceded by it. During this term the reconnaissance and location of a line several miles in length will be made and maps and profiles constructed and estimates, etc. formed. The field work will be arranged as far as possible for Saturdays. Two hours recitation and six hours field and office.

Course VII.—*Highway Construction.*—Senior year; fall term. This course includes a consideration of the elementary principles of location, construction and maintenance of roads including a consideration of the materials used in road and street building. Three hours recitation and four hours office and field.

Course VIII.—*Highway Construction.*—Senior year; winter term. Continuation of Course VI. This course will include the surveys, location, estimates of cost and preparation of plans, specifications and contract for a section of road involving the usual engineering difficulties. One hour recitation and eight hours office and field.

Course IX.—*Masonry Construction and Foundations.*—Senior year; third term. This course includes a consideration of stone, brick, lime and cement, and estimates and specifications for their use, also the theory of the arch, retaining walls and foundations of various classes. This course must be preceded by courses VIII and XII in mechanics and must be preceded by or accompany course XIV in mechanics Five hours a week.

Course X. — *Agricultural Engineering.* — Senior year; third term. This course is open to students who have completed course IV. Instruction will be given in designing, locating and constructing agricultural drainage systems; laying out farm buildings, etc. Five hours per week.

Course XI.—*Roofs and Bridges.*—Graduate year; Fall term. Both analytical and graphical methods will be applied to the determination of stresses in roof trusses under static and wind loads and in bridges under static and moving, concentrated and distributed load. Three hours recitations and four hours drawing and computing room.

Course XII.—*Roofs and Bridges.*—Graduate year; Winter term. This is a continuation of course X and will take up design of such structures. Courses X and XI must be preceded by mechanics VII, XII and XIV. One hour recitation and six hours drawing and computing room.

Course XV.—*Mining Engineering.*—Senior year; third term. The subjects treated embrace preparatory and exploratory work, methods of mining, hoisting machinery, hoisting operations and conveyances, steam, water and electric power, underground traffic, pumping, ventilation, illumination, etc. Five hours a week.

Course XVI.—*Sanitary Engineering.*—Graduate year; Winter term. Drainage systems for populous districts including chemical and bacteriological purification of sewage, collection and destruction of garbage, street cleaning, etc. Prerequisites, courses I, II, III and VIII civil engineering, hydraulics and mechanical drawing. Two recitations and lectures and four hours computing and drawing room per week.

Course XVII.—*Water Supply Engineering.*—Graduate year; Spring term. Water supply for municipal and irrigation purposes, storage, purification, distribution and management of plant will be considered. Two hours recitation and six hours computing and drawing room. Prerequisites same as course XVI.

Course XVIII.—*Engineering Contracts and Specifications.*—Graduate year; Spring term. The general principals governing engineering contracts and specifications including preparation, careful criticism and study of several specifications and contracts in connection with courses V to XVIII. Two hours recitation and lectures per week.

TEXT BOOKS.

Arithmetics—Higher Arithmetic; Wentworth.

The New Business Arithmetic—Powers & Lyon.

Algebra—Essentials of Algebra; Wells.

Advanced Algebra—Hawkes.

Geometry—Plane and Solid Geometry (Revised Edition); Wentworth.

Trigonometry—Plane and Spherical Trigonometry; Ashton & Marsh.

Analytic Geometry—Plane and Solid Analytic Geometry; Ashton.

Calculus—Differential and Integral Calculus; Nichols.

Astronomy—Elementary Astronomy; Young.

Surveying—Johnson.

Railroads—Searles, Webb.

Mining Engineering—A Manual of Mining; Ihlseng.

Roofs and Bridges—Merriman & Jacoby.

Sanitary Engineering—Folwell.

Water Supply Engineering—Folwell.

Contracts and Specifications—Johnson.

Masonry Construction and Foundations—Baker, Patton.

Highway Construction—Byrne.

ZOOLOGY.

A. B. CORDLEY, M. S., Professor.
W. T. SHAW, B. Agr., M. S., Assistant.

The work in this department is designed to give the student that knowledge of biological laws which is to-day regarded as an essential part of a liberal education. It aims to create a growing interest in the study of our native birds, insects and other animals and their interrelations with one another, with native and cultivated plants and with rural life; to give a knowledge of the foundation facts of morphology and physiology on which depend many of the principles of scientific stock breeding and feeding, of veterinary science and of human physiology and hygiene; and above all from an educational standpoint, it aims to train the student's perceptive faculties, to teach him to see, to do and to reason from observed facts.

The laboratories of the department occupy six rooms on the third floor of the agricultural building. They are well supplied with necessary apparatus including compound and dissecting microscopes, camera lucidas, eyepiece and stage micrometers, an automatic microtome, dissecting sets, dry and steam sterilizers, incubators, reagent sets and numerous smaller articles, all of which are for the use of students.

For the purpose of illustration there are in addition to the general museum and the entomological collection a set of the celebrated Leuchart zoological charts, enlarged dissectable models of the human ear, eye, heart, brain and larynx and a large series of microscopic mounts.

The general museum, which occupies the main part of the fourth floor of the agricultural building, also contains a small but typical collection of mounted mammal skins; a collection of mounted skins of native birds; a collection of mounted bird skins from Alaska; a collection of more than one hundred species of eggs of native birds; a small collection of fishes and reptiles; a considerable number of marine invertebrates, including a small but beautiful collection of Philippine shells; a small but interesting collection of skulls and disarticulated and articulated skeletons; and the largest collection of Oregon insects in existence.

Course I.—*Invertebrate Zoology.*—Sophomore year; third term. A course devoted principally to the morphology, physiology and ecology of invertebrates. Particular attention is given to the study of the single celled forms since it is believed that the student can thus best gain an insight into the structure and physiological activities of the higher animals. Some of the types studied are the amœba, paramœcium, vorticella, sponge, hydra, starfish, crawfish, earthworm, mussel and grasshopper. Required in the agricultural, household science and pharmacy. Seven hours a week. Laboratory deposit, $3.00.

Course II.— *Entomology.*— Junior year; first term. A study of the structure, classification and habits of insects, with particular reference to those which are beneficial or injurious. Instruction is given in methods of collecting and mounting insects and in studying their life-histories and in the preparation and use of insecticides. Required in the agricultural, household science and literary commerce courses. Prerequisite, course I. Seven hours a week. Laboratory deposit, $1.00.

Course III.—*Vertebrate Zoology.*—Junior year; second

term. A course devoted principally to the morphology and physiology of vertebrates. A careful comparative study is made by dissections of several vertebrate types, particular attention being given to the Guinea pig as a type of the mammalia. The relation of function to structure is kept constantly in mind throughout the course which thereby becomes valuable as an introduction to the study of human physiology and veterinary science. Required in the agricultural, household science, pharmacy and literary commerce courses. Seven hours a week. Prerequisite, course I. Laboratory deposit, $3.00.

Course IV.—*Physiology.*—Junior year; third term. A course in human physiology designed for students having a knowledge of general biology and of vertebrate anatomy. The student should also possess some knowledge of chemistry and physics. Required in courses in agriculture, household science, pharmacy, business and literary commerce. Seven hours a week.

Course VI.—(*a*) *Evolution.*—Senior year; first term. A course of lectures and collateral reading on organic evolution; covering such topics as the evolution of evolution, variation, struggle for existence, heredity, etc. Prerequisites, courses I and III. Two hours a week. Elective.

(*b*) *Systematic Zoology* —A discussion of the principles of zoological classification with particular reference to species of economic importance. Prerequisites, courses I and III. Three hours a week. Elective.

(*c*) *Advanced Entomology.*—A laboratory study of some restricted group of insects, of some particular species of economic importance, or of the insects affecting some particular crop. In this course students have free access to the collections and the library and records of the experiment

station. The course extends throughout the year. Prerequisites, courses I and II. Seven hours a week. Elective.

Course VII.—(*a*) *Histology.*—Senior year; second term. A course of laboratory practice in fixing, hardening, imbedding, sectioning, staining, mounting and studying the tissues of the higher animals. Prerequisites, courses I and III. Seven hours a week. Elective.

(*b*) *Advanced Entomology.*—A continuation of course VI *c.*

Course VIII.—(*a*) *Embryology.*—Senior year; third term. Mainly a laboratory course in the study of the development of the frog and the chick, supplemented by a study of the general facts and principles of embryology. Prerequisites, courses I, III and VII *a*. Seven hours a week. Elective.

(*b*) *Advanced Entomology.*—A continuation of courses VI *c* and VII *b*. Seven hours a week. Elective.

TEXT-BOOKS AND REFERENCES.

Courses I and III.—Texts, "Animal Life," Jordan and Kellogg and "Animal Forms," Jordan and Heath. References, "Outlines of Zoology," Thompson; "Text-Book of Zoology," Parker and Haswell; "Text-Book of Comparative Anatomy," Lang; "Invertebrate Morphology," McMurrich.

Course II.—Text, "Insect Life," Comstock. References, "Manual for the Study of Insects," Comstock; "Insects Injurious to Fruits," Saunders; "Economic Entomology," Smith. Bulletins and reports of the various experiment stations and of the United States Entomologist.

Course IV,—Text, "Human Physiology," Thornton. References, "An American Text-Book of Physiology," Howell; "Practical Physiology," Sterling.

BOTANY AND FORESTRY.

EDWARD R. LAKE, M. S., Professor.

BOTANY.

The aim of the regular course in botany is to give the student such a working knowledge of plants and plant-life as will enable him to intelligently consider the various problems of vegetable life on the farm, in the garden or forest.

The student is taught to observe plants; to become familiar with them through a working association; to ascertain by actual field-work and observation what plants do, and what relations they bear to each other, and to other forms of life.

The chief features of the work in this subject are field and laboratory exercises, supplemented by lectures and recitations. Text and reference books are used merely as guides, or for the purpose of furnishing suggestions to the end that the student may be enabled the better to make the field, garden, greenhouse and laboratory work the more effective.

The department has a good working equipment for the courses outlined. Individual sets, comprising dissecting and compound microscopes, laboratory glassware and other apparatus are supplied each student at a moderate rental fee. The collection of mounted and unmounted plants, especially rich in Oregon types, together with charts, models and preserved specimens furnish ample material for both regular and special advanced work in the several courses.

Course I.—*Plant Morphology.*—Freshman year; third term. Laboratory and field exercises, together with recitations. The gross structure of our common plants is the

main topic of the term's work. In the field-work particular attention is given to ecology—the plant in its relation to soil, air, water, light and the other plants that are associated with it. Incidentally germination, growth, fertilization and fructification are considered. Seven hours a week. Laboratory deposit, $1.00. Bergen, Foundations of Botany; Coulter, Plant Relations.

Course II.—*Plant Histology.*—Sophomore year; first term. Laboratory work with the dissecting and compound microscopes. The exercises of this course cover the minute structure of the higher plants, together with a brief consideration of the lower forms of plant life. Seven hours a week. Laboratory deposit, $2.50. Coulter, Plant Structures; Strassburger and Hillhouse, Practical Botany.

Course III.—*Plant Physiology.*—Junior year; second term. Laboratory exercises and recitations. The subject is considered with special reference to the needs of the agriculturist and horticulturist. The principal part of the discussion is upon those phases of the subject that bear directly upon our cultivated crops. Seven hours a week. Pre-requisite, course II. Laboratory deposit, $3.00. Sorauer, Physiology of Plants; McDougal, Plant Physiology.

Course IV.—*Plant Classification.*—Junior year; third term. This course is designed to meet the demands of the pharmacist for a working knowledge of plants in general. Much stress is laid upon field and laboratory work. Plant relationships, plant societies, regional types, plant products, the medicinal and poisonous species of our common plants, are some of the topics considered during the term's work. Required in the course in pharmacy. Seven hours a week. Laboratory deposit, $1.50.

Course V.—*Plant Pathology and Hygiene.*—Senior year;

first term. Laboratory and field work supplemented by lectures and recitations. The common fungous foes of the cultivated field, orchard and garden crops, together with the means of prevention and remedy are considered at length. Seven hours a week. Elective. References, Lodeman, Weed and Smith.

Course VI.—*Plant Products.*—Senior year; second term. Economic plants and their various preparations and uses. History, development, and distribution of the plants that furnish the world with its chief supply of material for food, shelter, clothing, fuel, medicine and the arts. Elective. Seven hours a week.

Course VII.—*Systematic or Cryptogamic Botany.*—Senior year; third term. The work of this course is arranged to meet the needs of those electing it. In the systematic work, the student collects and classifies a hundred or more of the local plants, giving data as regards habitat, and distribution, and prepares a synopsis of the orders considered and species collected. Some time is also devoted to a study of current botanical literature.

In the cryptogamic work, the exercises are confined chiefly to a study of the comparative morphology of the fungi, algæ and other low forms of plant life. Seven hours a week. Elective. Laboratory deposit, $2.50.

The laboratory deposits in courses I, II, III, IV and VII are required of all students, and are made to cover possible loss and breakage of apparatus used. At the close of each term such balance as may remain, is returned to the student. All deposits are required to be made in advance.

Course VIII.—*Agrostology.*—Senior year; first term. A brief course designed to meet the needs of those students who desire to get a working knowledge of the more common forage grasses, particularly the local native and introduced species. The economic aspect of the subject so far as relating to culture and feeding-value will be considered by the agriculturist.

FORESTRY.

The course in forestry is designed to meet the needs of those men who desire to enter the government forest service, or to fit themselves to care for the forest areas of private owners.

Forestry I.—*Club-work.*—The "Forest Club" meets twice each month for the discussion of current forestry literature, magazine articles, news items, legislation, and general progress movements pertaining to forests, forest-service, forest-products, forest-industries, lumbering, and the lumber trade. First and third Fridays, each month, 7 p. m.

Forestry II.—*Club-work.*—In addition to work outlined in Forestry I, members of the third year class are required to take an active part in the affairs of the "Camera Club", an organization for the advancement of "camera craft". Besides the regular discussions of topics pertaining to lenses, cameras, camera outfits, plates, films, printing-papers, negatives, lanter-slides, transparencies and general technique, there will be occasional lectures on Art and Nature, artistic photographs, photographs for scientific purposes, photographic illustration, etc., etc. and frequent demonstrations of material and processes. First Thursday, each month, 7 p m.

Forestry III.—*Club-work.*—In addition to the work of Forestry I and II the members of the fourth year class will perform actual service in the "Rod and Gun Club", an organization having for its special field of work the study and promotion of all matters of mement pertaining to the game and fish interests of forest and field, game preserves, game-laws, game-breeding, game-protection, huntsman's clubs, sportsmen's liabilities, and other pertinent topics. Second Friday, each month, 7 p. m.

Forestry IV.—*Sylviculture.*—Throughout second year. The principles of plant propogation; the structure, dissemination, germination, vitality, collection and preservation of tree seeds; seedbeds, seedage, cuttage, nursery-work, transplanting trees, pruning, thinning, pure and mixed plantings, nurse trees; forest reproduction by successive cuttings, selection, coppice.

Forestry V.—*The Forest.*—Third year; first term. The principles underlying the growth, development and maintenance of forest areas. The tree as a factor in forest types, and as a unit of vital force in the forest-crop. A brief outline of forestry in Europe, together with the history of the forestry movement in America, and its present status.

Forestry VI.—*Dendrology.*—Third year, second term. The study of trees from a taxonomic standpoint. Particular stress is put upon a study of those features which enable one to identify trees afield. The course includes lectures, laboratory and field work.

Forestry VII.—*Forest Industries.*—Third year; third term. A discussion of the various industries depending upon the forests, together with the consideration of questions relating to improved ways of utilizing our forest crop.

Forestry VIII.—*Forest Finance.*—Fourth year; first term. The value of the forest: stability of investment, dividends on the investment, local problems in forest finance.

Forestry IX.—*Forest Administration.*—Fourth year; second term. General principles of effective administration: working-plans, estimation, methods of harvesting the crop, principles governing the execution of working-plans.

Forestry X.—*Forest Economies.*—Fourth year; third term. Taxation, Tariff, Transportation, Markets, Labor, Organization, Trusts, Public welfare, National Commerce.

Forestry XI.—*Timber Technology.*—Fifth year; first term. Timbers as to strength, toughness, hardness, flexibility, grain, texture, etc., etc. Warping, swelling, density. The influence of these properties upon the market value of timbers; factors which determine the uses of various economic woods.

Forestry XII.—*Lumbering.*—Fifth year; second term. Lumbering practices: utilization of waste. Cutting, seasoning; commercial standards; bridge-stuff, framing, sheathing, finishing, lath, shingles; furnishing, as doors, sash, blinds, etc., etc. Grading lumber, markets and marketing the manufactured product.

Forestry XIII.—*Forest Policy and Protection.*—Fifth year; third term. Legislation for forest conservation, protection and renewal; National and State enactments regarding reserves, parks, water-sheds and irrigation.

The relation of the forests to National and State industries; statistics; protection against fires, trespass, insects, diseases, weeds and storms.

SUMMER CAMP.

All students in the regular course in forestry will be required to spend two sessions of eight weeks each during July and August of the junior and senior years in the forest. One session is required at Camp Reserve; a part of the other, at the option of the forester, may be spent in lumber camps, mills or factories. The objects of these summer sessions are two-fold; to give the student a practical working knowledge of the subject in hand, and to advance his technical training. In view of these ends the work of the summer session is diverse and is presented in two ways, lectures and field-work.

JUNIOR YEAR—LECTURES.

These are presented as a series of campfire talks and discussions covering the following topics:

1. Methods of field-work.
2. Forest transportation, trail and road construction.
3. Pack animals, selection, care and management.
4. Forest-service, duties of fire and game wardens, rangers, and other officers.
5. Forest physiography including field-geography, geology and plant distribution.
6. Timber cruising, mensuration.
7. Forest fires, prevention, fighting, remedies.
8. Grazing in forest acres.
9. Fish and game; hunting, trapping, fishing, breeding, etc.

WOODCRAFT.

This is a series of daily practical exercises in field forestry. The subjects with which the student will be required to have an actual working knowledge are: packs and packing, trail and road making; camp equipage; camp making; camp fires; water supplies; camp cooking; woodmen's tools; their use and abuse; use and care of fire arms; dressing and preserving game; care of skins, furs, hides and pelts.

FIELD WORK.

Observations, general and special; geology, meteorology, hydrography, biology, dendrology, daily or weekly assignments; Sylviculture, cruising, surveying, mensuration, records, charting, mapping, photographing.

TIME FACTOR IN CAMP SESSION.

JUNIOR YEAR.—FIELD WORK.	Hours
Surveying	72
Sylviculture	40
Mensuration	72
Botany	20
Zoology	24
Entomology	20
Geology	24
Dendrology	40
OFFICE WORK.	
Mapping and Charting	32
Records	8
LECTURES.	
Fish and Game	8
Forest Service	12
General Topics	12

SENIOR YEAR.—LECTURES.

Influence of Forests and Trees upon National Life.
Forest Laws.
Forest Policies.
Forest Management.
Forest Administration.
Forest Reserves, National and State Parks and their values.
The Forest as a health resort.

FIELD WORK.

Logging; transportation of timber; camp management, milling, pulping, distilling, utilizing waste, preserving timbers and lumber, working plans.

HORTICULTURE.

CLAUDE ISAAC LEWIS, Professor.

The work in horticulture is so arranged as to give the student a working knowledge of the principles and practices of modern horticulture, especially applicable to Pacific Coast conditions and requirements.

The experiment station orchard of over two thousand fruit trees, shrubs and vines furnishes ample material for all phases of the work of the several courses.

Course I.—*Plant Propagation.*—Senior year; first term. House and field exercises in seeding, propagation by cuttings, layering, harvesting, storing and marketing. Recitations. Two and one-half, or five hours a week. Goff, Principles of Plant Culture.

Course II.—*Plant Culture.*—Senior year; second term. Lectures and recitations on orchard, garden and vineyard fruit crops, including selection of soils, planting, cultivating, pruning. Two and one-half, or five hours a week. Bailey, Principles of Fruit Growing.

Course III.—*Plant Evolution and Improvement.*— Senior year; third term. Lectures and recitations covering the various phases of evolution as bearing especially upon our cultivated plants, together with a discussion of the principles and practices of plant-breeding, and improvements by selection and cross-fertilization. Five hours a week. Bailey, Plant-Breeding; Bailey, The Survival of the Unlike.

ELOCUTION.

HELEN V. CRAWFORD, B. S., Professor.

> "There is one accomplishment, in particular, which I would earnestly recommend to you, Cultivate assiduously the ability to read well. Good reading is the natural exponent and vehicle of all good things. It seems to bring dead authors to life again, and makes us sit down familiarly with the great and good of all ages."

It is the purpose of this department to train the pupils to become thoughtful, intelligent, and agreeable readers. To give them the power to extract thought from the printed page, and by systematic drill both in physical culture and voice work to give them adequate vocal expression. To instill in the minds of pupils a love for good literature, and a genuine pleasure in interpreting and rendering the same.

Courses I and II.—*Elocution.*—Freshman year; first and second terms. Analysis and rendering. Voice culture, physical culture. Two hours a week. Evolution of Expression, Vol. I., C. W. Emerson.

Course III.—*Elocution.*—Freshman year; third term. Voice culture, bodily expression, analysis and rendering. Two hours a week. Evolution of Expression, Vol. II., C. W. Emerson.

Courses IV, V and VI.—*Advanced Elocution.*—Senior year; first, second and third terms. Voice culture, rhythmic movements, literary analysis and rendering. Elective. Two hours a week. "Steps to Oratory," F. Townsend Southwick.

Senior year.—Rhetorical exercises will be required first term of senior year.

FLORICULTURE AND GARDENING.

GEORGE COOTE, Professor.

Instruction in floriculture is given to the classes in household science. Floriculture is intended to acquaint students with the habits and requirements of the many hardy plants for outside decoration and also with the propagation and management of tropical and subtropical varieties. Thus students are enabled to acquire considerable insight into the proper care of greenhouses. In order that this plan may be carried into effect, lectures supplemented by practical work in the propagation, potting and care of plants, are regularly given in the classes.

Course I.—Sophomore year; second term. Propagation of spring and summer plants for adorning the home grounds.

Course II.—Junior year; first term. Propagation of soft wooded plants, care of greenhouse, propagation and care of winter flowering plants.

Course III.—Senior year; third term. Landscape Gardening is treated as a fine art. Introductorily the arts of design in general are discussed. Then are discussed the principles, aims and methods of artistic gardening. The principles, when once understood, are applied to the embellishment of home grounds, cemeteries, parks and highways.

BACTERIOLOGY.

EMILE F. PERNOT, M. S., Professor.

Within the last decade bacteria have laid a very strong hold on the thought and imagination of the scientific world, and have come to be looked upon as playing a most important part, not only in the production of disease and in fermentation, but also in many everyday processes hitherto supposed to be dependent on very different causes.

In consequence of this, bacteriology has been raised to the dignity of a science, and its ramifications have become so numerous and widespread that many of the other sciences, and even some of the arts, have been freely pressed into the service of one or the other of its branches.

The study of bacteriology has made great strides both in the pathological and the technical branches of the subject; and just as investigations into the physiology of higher plants gave the first impetus to the establishment of agricultural experiment stations in all countries; so, in like manner, the physiology of fermentation and technical bacteriology have called into existence, within the last few years, a number of stations and laboratories for the development of those branches of industry wherein microörganisms play an important part.

This college has a well equipped bacteriological laboratory for the investigation and study of bacteriological diseases, both animal and vegetable.

The following courses of lectures and laboratory work have been added to the college curriculum as electives in the senior year.

Course I.—*Bacteriology.*—Senior year; first term. A course in the elements of bacteriology, including lectures, and laboratory practice in sterilizing, making culture media, inoculating and growing cultures, studying cultural characteristics of certain definite species of bacteria, mounting, staining and examining slides, classification.

Course II.—*Dairy Bacteriology.*—Senior year; second term. Study of the bacterial diseases of milk, bacteria in the dairy; study of bacteria in butter making and in cheese making; study of yeasts and ferments.

Course III.—*Bacteriology.*—Senior year; third term. Lectures and laboratory work in pathogenic germ diseases of stock and poultry; a study of vaccines, their manufacture and use; of the nitrifying bacteria in leguminous plants; of bacteria in the soil and the bacterial analysis of water.

Text-book used, "Essentials of Bacteriology," M. V. Ball.

REFERENCE BOOKS.

Manual of Bacteriology, Sternberg; Manual of Determinative Bacteriology, Chester; Bacteriology and Infective Diseases, Crookshank; Principles of Bacteriology, Abbott; Tratie de Bacteriologie, Mace; Pathogenic Bacteria, McFarland; Ptomains, Leucomains, Toxins and Antitoxins, Vaughan & Novy; Micro-organisms and Disease, Klein; Microbes, Ferments and Moulds, Trouessart; The Hygienic Laboratory, Kenwood; Tratie de Microbiologie, Duclaux; Pathological Histology, von Kahlden; Pathological Technique, Mallory and Wright; Clinical Diagnosis, Simon; Micro-organisms in Water, Frankland; Technical Mycology, Lafar; Bacteriology (Text and Atlas), Lehmann and Neumann; Micro-organisms and Fermentation, Jorgensen; Dairy Bacteriology, Von Freudenreich; Practical Studies in Fermentation, Hansen; Practical Bacteriology, Kanthack and Drysdale; Fungi and Fungicides, Weed; Bacteria and Their Products, Woodhead; The Methods of Bacteriological Investigation, Huppe; Agricultural Bacteriology, Conn. Publications of the Department of Agriculture.

FREEHAND DRAWING.

AMMEE LEVERETT, Instructor.

This course in drawing is designed chiefly to facilitate practical work in other departments, to teach the student to represent objects and plants as they actually are, rather than as they appear to be. Both professional men and craftsmen assert that a knowledge of drawing is invaluable, and as a means of general culture, the study of form and composition is very beneficial.

Course I.—Freshman year; first term. Drawing with charcoal and pencil from still life and casts; massed shading. Three hours a week.

Course II.—Freshman year; second term. Continuation of the first term work with the addition of models from nature. Line shading. Three hours a week.

Course III.—Freshman year; third term. Sketching from life, drawing from still life, nature, and the flat. Composition and design. During the third term students are permitted a choice of models and working mediums. Five hours a week.

VOCAL MUSIC.

FLORENCE McDOWELL GREEN, MUS. B., Instructor.
(University of Wooster.)

Voice Culture—Based on two lessons a week.

Grade I—Vocal exercises for placing the voice. Vaccai Italian Studies. Bonaldi, Bk. I in part. One term. Course I.

Grade II—Bonaldi completed. Conconi 50 Studies. Lutgen Trill Studies, Bk. I, Sieber Elementary Exercises. Two terms. Courses, II, III.

Grade III—Lutgen, Bk. II—Studies in phrasing by all composers. Bk. I, Scales and Exercises. Nava Studies, Bk. I, op. 36 and op. 22. Three terms. Courses IV, V, VI.

Grade IV—Bordogni, Bk. I. Exercises in Bravura work and rapid scales by Lamperti. Oratorio and opera selections. Six terms. Courses VII, VIII, IX, X, XI, XII.

Pieces suited to the pupil with all studies.

Drill in part singing through 3d and 4th grades.

Three grades of the Pianoforte course are required for graduation.

Recitals, both public and private, will aid the students in obtaining mastery of themselves before an audience.

The Choral Classes—Based on three lessons a week.

First Year—History of music in relation to national history. Tone relations. The major and minor second 3d and 6th. Practical work in reading and writing intervals. Chorus from Oratorio. Glees and simple chorus work. The Chant. Courses I, II, III.

Second Year—The history of the scale. The pitch of the orchestra. Perfect 4ths and 5ths. Practice in writing intervals. Keys. Chorus and quartet work.

Third Year—Musical terms and forms. The history of the German Folk Song, the English Ballad and the American Song. Lectures on Schubert, Wagner, Mozart, Beethoven. Practice with the 7th, all diminished, minor and augmented intervals. Brahm's "Vineta." Chorus from Mesiah, Elijah, The Holy City. Selections from the Operas. Courses VII, VIII, IX.

This course is designed to give those of limited time and means an intelligent understanding of the origin and development of song and instrumental music, as well as the ability to read at sight.

Graduation.—Upon completion of any course in music, the student will receive a certificate of graduation. While none of the regular college studies are required in the department of music, a broad, general education is earnestly recommended as necessary to success in the musical profession.

Tuition, in this department, is payable to the instructor and strictly in advance.

Private lessons, of one-half hour, two a week, $4.00 a month; of one hour, one a week, $3.00 a month.

Choral Class, for drill in the fundamental elements of music, one lesson a week, fifty cents a term.

College Chorus, for advanced study, one lesson a week, $1.50 a term.

Students registering in music are expected to pursue the study throughout the term. No deduction for missed lessons, except in cases of protracted illness.

Music may be obtained from the Instructor.

Piano rent, when the piano is desired, for practice, $1.00 a month for one hour a day.

PIANO COURSE.

GERARD TAILLANDIER, Professor.
(Boston and Leipsic)

Undergraduate Courses.—The work in pianoforte consists of three undergraduate courses: Elementary, Intermediate and Advanced. A post graduate course will also be offered. Each undergraduate course is divided into two grades, A and B. For graduation pupils will be required to complete satisfactorily the work through Grade B of the Advanced course, and to have been pupils for at least three consecutive terms, with two lessons weekly. In addition, they must pass examinations in Harmony, Musical History and Theory.

All piano students are required to play at pupils' recitals whenever asked by the instructor, and attend all recitals given by the department to all of which they will be given free admission.

The following outline will indicate the scope and difficulty of the work, but other studies and pieces may be substituted as the needs of the pupils may require. All graduates must be able to give an entire recital of not less than one hour in length.

Elementary Course.—Grade A. No requirements for entrance. Kohler Method, Vol. 1; A. Schmitt, Five Finger Exercises; Easy Pieces by Behr, Lichner, Low and others; Kohler, Studies Op. 157, Op. 50.

Grade B. Kuhlau, Sonatines; Major scales and arpeggij; Studies by Kohler and Czerny; Pieces by Koelling, Lange, Pacher, and others.

Intermediate Course.—Grade A. Major and Minor scales and arpeggij; Loschhorn, Etudes, Op. 66; Bach, Little Preludes; Mendelssohn, Op. 72; Beethoven, Variations and other pieces.

Grade B. Cramer-Bulow Studies; Bach, two part inventions; Beethoven, Sonatas, Op. 14, Op. 2; Haendel, Pieces; Kullak, Octave Studies, Book I; Bach, Fantasie in C Minor, etc.; Mendelssohn's Songs Without Words; Weber, Pieces.

Advanced Course.—Grade A. Clementi, Gradus ad parnassum; Kullak, Octave Studies, Book II; Moscheles, Etudes, Op. 70; Beethoven, Sonatas, Op. 10, 13, 31; Beethoven, Variations, Op. 34; Chopin, Preludes, Valses, Nocturnes, etc.; Bach, Preludes and Fugues; Mendelssohn, Rondo capriccioso; Schumann, Pieces.

Grade B. Chopin, Etudes, Op. 10 and 25; Bach, Fugues and Suites; Schumann, Faschingsschwank, Op. 26; Liszt, Transcriptions and Rhapsodies; Mendelssohn, Variations serieuses; Beethoven, Sonatas, Op. 26, Op. 27, Op. 53; Chopin, Scherzi and Ballades.

Post Graduate Course.—The post graduate course carries pupils on from the point reached in the Advanced Course, Grade B. The more difficult works of Bach, Beethoven, Schumann and others, including concertos, will be taken up, and the study of counterpoint and analysis becomes compulsory. To enter the post graduate course, pupils must hold diplomas from the undergraduate course of this department or from some other music school of equal requirements.

Harmony and Counterpoint I, II, III.—This course will cover one school year. Emery's Harmony and Bridge's Simple Counterpoint are used as text-books. Only two part simple counterpoint will be taught, with a view to enable the student to intelligibly interpret polyphonic works. This study ought to be taken by all students in advanced grade A or earlier.

Theory and Musical Form I, II.—These subjects will be taught twice weekly during the winter and spring terms. No text-books will be required for Theory and Form.

Musical History I, II, III.–Bonavia Hunt's History of Music will be found a most useful and handy book of reference for students taking this course. Instruction will be given principally in lectures upon which the students are expected to take notes. The lectures will be based on the Histories of Music by Rowbotham, Naumann, Hullah, Dr. Riemann, Dr. Nohl, Dr. Langhans, Groves Dictionary of Music and Musicians, etc., and the course will be a very comprehensive one, covering the history of music from the most ancient times to the present. Two periods weekly will be required during the entire school year.

TUITION.

Piano.—Private lessons of 30 minutes duration, $18.00 per school term, twice weekly; $12.00 per school term, once weekly. If less than a term is taken the rate will be $1.00 per lesson, twice weekly, and $1.25 per lesson, once weekly.

Arrangements for renting pianos can be made with the instructor, the charges being 25 cents per week for one hour daily practice, 50 cents for 2 hours, etc. Pianos can also be rented to be placed in the house of the student.

Harmony, Musical History, Counterpoint, Theory and Musical Form, in classes twice weekly, $6.00 per term for each study.

Diploma at graduation, $5.00. No deduction will be made for missed lessons, except in case of prolonged illness, in which case due notice will have to be given to the instructor. All tuition is payable in advance.

PHYSICAL CULTURE.

WILL ORIAN TRINE, Physical Director.

The aim of this department is to secure and maintain perfect health. To this end we strive to develop a symmetrical and graceful body. No pretense is made at developing actors, and no one is required to do what is known as "heavy work." However, there are always classes and special teams in various lines of artistic gymnastics, and those enjoying the work are welcome.

The chief aim is to benefit the weak and to guard against developing any tendencies to weakness or disease that so often exist. To this end every man entering the department is given a rigid physical examination. In these examinations the exact condition of the man is noted and special exercises are prescribed to meet his particular case. Records are kept making it possible by later examinations to note results of work and progress made.

The work is largely selected from the German and Swedish systems of gymnastics and "The Grading of Gymnastic Exercises" by George M. Martin. A progressive course is followed. The class work which is carefully planned aims primarily to cure the common physical defects, such as narrow chest, stooping shoulders and weakened muscular system.

The gymnasium is well equipped for thorough work. The basement is provided with lockers and bath rooms for both men and women. The main floor is equipped with horizontal bar, parallel bars, buck, horse, rings, ladders, trapeze, dumb-bells, clubs, wands and other apparatus. South of the gymnasium is a large athletic field, with a quarter-mile track, grandstand, 100-yard straight-away track, tennis courts and foot-ball grounds.

MINES AND MINING.

JOHN FULTON, B. Agr., B. S., Professor of Mineralogy and Geology.
GORDON V. SKELTON, C. E., Professor of Mining Engineering.
CHESTER L. PROEBSTEL, B. M. E., Assistant.

Instruction is given in this department to familiarize the student with the most approved methods of successfully carrying on mining operations as practised on the Pacific coast. The student is taught the uses of the various surveying instruments and is given ample opportunity for practical application in both field and mine surveying.

For courses in mine surveying, leveling, etc., see page 63.

The student is also taught how to care for and handle such machinery as boilers, engines, motors, pumps, etc. by practical study and use in the machine shops.

The course in mineralogy is designed to make the student familiar with all the common forms of minerals and their systems of crystallization.

Crystallography is first taken up, and the laboratory work consists of the study of crystal models and natural crystals.

After sufficient familiarity with crystal forms, the students are required to make drawings from actual measurements with the reflecting goniometer, by using the Penfield sheets and special protractors, and at least two each of the different systems are required.

Any student who has passed the course should be able to identify all but the rarer species. For all practical purposes this is sufficient. This course is required of all mining students but as it includes all the various blow-pipe as well as the other chemical tests, all who intend to become chemists will find it to their advantage to take at least crystallography.

Mineralogy I.--*Crystallography.*-Senior year; first term. Required of mining students, and open to seniors in both mechanical and agricultural courses. Seven hours a week.

Mineralogy II.--*Chemical and Descriptive Mineralogy.* —The laboratory work consists of blowpipe analysis. On alternating days recitations and lectures. Seven hours a week.

Mineralogy III.—This is a continuation of course II, and consists of the description and identification of the silicates. Seven hours a week. Qualitative analysis is required of all students who desire to enter these courses.

Mineralogy IV.—*Assaying.*—Senior year; second term. A course in practical assaying of gold, silver, iron, mercury, zinc and copper ores. Must be preceded by qualitative analysis and mineralogy I. Six hours a week.

Mineralogy V.—*Assaying.*—Senior year; third term. A continuation of course V. Six hours a week.

Mineralogy VI.—*Metallurgy.*--This course is designed to give the student a general knowledge of metallurgical principles and of the materials used in the extraction of metals from their ores. It will include a general description of fuels, furnaces, crucibles, slags and mattes; as well as the methods of extracting metals by wet processes, such as by cyaniding, or chlorination. Seven hours a week.

Mineralogy VII.—This is a course in advanced metallurgy, consisting of the complete analysis of ores and metals, and is chiefly laboratory work. Elective.

Mineralogy VIII.—*Metallurgy of Iron and Steel.*— Laboratory and lectures. Elective.

All courses in mineralogy must be preceded by Geology I, and courses in metallurgy, by Geology II.

Geology I.—*General Geology.*—This course consists of both recitation and laboratory work, and when possible, excursions into the adjoining country, to make observations upon the various geological phenomena. Five hours a week.

Geology II.—*Mining Geology.*—This course consists of lectures and recitations on the origin and geological relations of ore deposits, and is primarily for mining students. Five hours a week.

The courses in assaying cover analysis of gold, silver, mercury and lead ores, by the fire or dry assay, and the estimation of copper, iron, and zinc, by the volumetric or wet assay.

Instruction in rapid estimations of various metals is also given when time permits.

The equipment of the assay laboratory consists of one simplex ore crusher, one wall cupel machine, one Becker button balance, one Spohrhaese button balance, two pulp scales, one bucking board, two crucible furnaces, two muffle furnaces, one combination muffle and crucible furnace. All above furnaces are heated by Hoskins' gasoline burners, supplied by pressure from one fifteen-gallon pressure tank. In addition, there are furnaces for coal or coke, both stationary and movable, anvils, moulds, tongs, scorifier-crucible and cupel-hand cupel machines, etc.

Nothing has been omitted in the equipment of a first class assay laboratory, so that students completing the full course will have no difficulty in taking up the duties usually incumbent upon the assayer.

There have been added during the past year, a Fuess reflecting goniometer, a quantitative balance, two sets of crystal models and an extensive mineral collection.

A valuable addition to the mining department has just been completed which is a metallurgical laboratory sufficiently large to accommodate 72 students.

In addition to the regular course there has been added another year's work for the completion of which shall be granted the degree of Mining Engineer.

The year's work will be largely a continuation of the fourth year's courses, in some cases extending into research work, while at the same time attention will be given to the courses required by other institutions offering advanced instruction along the lines of mining economy, so that students from this institution may not be prevented from completing the necessary amount of work entitling them to the master's degree, within the required time.

The requirements of such institutions as Stanford, Berkley, Cornell, and Columbia School of Mines have been duly considered.

Texts.—Scott's Geology, Furman's Assaying, Eakle's Physical Mineralogy, Moses & Parsons Blowpipe Analysis. References.—Kemp's Ore Deposits, Dana's Geology, Leconte Geikie, Reiss, Miers, Dana, Brush-Penfield, Cheever and Smith, Spurr, Low, Lodge, Miller.

LITERARY COMMERCE COURSE.

T. H. Crawford, A. M., Professor.
J. B. Horner, A. M., Penmanship.
Helen L. Holgate, B. H. E., Stenography and Typewriting.

This course leads to the degree of Bachelor of Science. The requirements for entrance to this course are the same as those for entrance to any one of the Freshman years in any of the other courses. See page 25.

One of the most attractive features of this course is the prominence given to English. Every term in the entire four years—with but two exceptions—presents the subject of English, making this emphatically a literary course.

Along commercial lines, the subjects of book-keeping, stenography, typewriting and commercial arithmetic are made prominent in the sophomore, junior and senior years and in the junior and senior years commercial law, civics and economics are studied.

The subject of penmanship is taken up in the third term of the freshman year and made prominent every term until the close of the junior year.

In mathematics—in addition to commercial arithmetic—there are algebra and geometry, All the mathematics come in the first two years.

During the sophomore and junior years either Latin or German is studied continuously. In these years will also be found the subjects of history, aesthetics, and psychology.

A fee of $1.00 per month during term time will be charged for the use of the typewriting machines.

None but regular juniors and seniors in the course take stenography and typewriting.

MILITARY SCIENCE AND TACTICS.

MAJOR FRANK EDWARDS,
Professor of Military Science and Commandant of Cadets.

"Whatever arguments may be drawn from particular examples, superficially viewed, a thorough examination of the subject will evince that the art of war is both comprehensive and complicated; that it demands much previous study, and that the possession of it in its most approved and perfect state is always of great moment to the security of a nation."—*Washington's last annual message.*

"In the same measure as we are prepared to enforce them, will our demands upon other nations receive consideration."—*President Theodore Roosevelt.*

The military body consists of two battalions of Infantry, Band of 24 pieces, and such Detachments of Cavalry, Artillery, Signal, Hospital and Engineer Corps as may be organized for special instruction. The formation is regimental; the drill and administration, are the same as in the Regular Army.

One of the objects of this instruction is to prepare the cadet, so that upon graduation he will be thoroughly competent to hold a commission in the National Guard or volunteer army.

The greater part of the instruction is directed towards having cadets adopt a systematic rule of conduct, inculcating accurate methods in everything they undertake. This not only places cadets in the condition to receive favorably all instruction in the military department, but facilitates study in the other departments and becomes a valuable asset to a young man going out in the world in any profession.

Military drill improves the habits and manners of the student, develops him physically and gives him that military knowledge which it is desirable every citizen should possess that he may render intelligent aid to his country or state in the time of need. It cultivates a manly spirit, ready and implicit obedience, respect for authority and self-restraint—all qualities of inestimable value to a young man.

Instruction in the course is prescribed for all undergraduate male students, except married men who are excused from drill. Students physically unable to bear arms are excused from active military drill but will be assinged some light duty by the head of the department. The instruction is both practical and theoretical.

The Cadet band, with twenty-four instruments, is under the instruction of a competent musician as leader. Ordinarily no cadet will be assigned to the band until he is well instructed in the "school of the soldier" aud the "school of the company."

The present armory contains a drill room 700x100 feet in extent, three offices, and suitable rooms for storing guns and other ordnance. The State Legislature has appropriated $15,000 for the construction of a new drill shed and armory.

Three hundred Springfield cadet rifles with equipments, two light artillery field pieces, twenty cavalry sabres, and a liberal allowance of blank and ball cartridges are furnished by the Ordnance Department, U. S. A. Other necessary equipments, apparatus, etc., for the thorough equipment of the military department is furnished by the College.

During the summer vacation the government will probably replace the Springfield rifles with 400 modern U. S. magazine riflles (Krag-Jorgensen), and the muzzle-loading field pieces with two 3.2-inch breech-loading field pieces.

Appointment and promotion of officers and non-commissioned officers and their relative rank in each grade is determined according to the military standing of the cadets, based upon a careful consideration of the following points:

(1) Knowledge of drill and other duties as determined by examination, practical application of this knowledge on the drill field, and recommendations of superior officers. (2) Zeal, soldierly bearing and aptitude for command. (3) Character. (4) Military record. (5) General standing in College.

Commissioned officers are selected from the Senior class; non-commissioned officers from the Junior and Sophomore classes; all reductions are to the grade of private. All appointments and promotions are made by the Commandant with the approval of the President of the College.

Officers and non-commissioned officers cannot resign their commissions except on recommendation of the Commandant, approved by the President; the reasons must be plainly stated in full and must not have been in existence at the time the commission or warrant was accepted.

DRILL.—Freshman, sophomore, junior and senior years. The practical course in infantry includes the schools of the soldier, company and battalion, in close and extended order; ceremonies; guard and outpost duty; target practice and battle tactics. In artillery it includes the schools of the soldier, cannoneer and platoon, dismounted; the mechanism, nomenclature and care of the 3.2 inch breech-loading field pieces; the use of artillery in the field.

Those physically unable to bear arms, together with a limited number from the senior and junior classmen, may be assigned to the signal corps. and instructed in the usual methods employed in military signaling.

Hospital, cavalry, and engineering detachments are organized from time to time for practical instruction in those branches.

Cadets are required to wear a complete uniform at all drills and other military exercises. The wearing of mixed civilian and uniform clothing is prohibited at all times. The uniform complete costs about $16.00 and is of the regulation olive drab color adopted by the United States Army and makes a very neat and serviceable suit.

Students must come prepared to deposit the price of the uniform, for which they will be measured as soon as they learn the position of a soldier.

Proficiency in the Military Department is a requisite to graduation.

THEORETICAL INSTRUCTION.—One recitation or lecture each week during junior and senior years. This instruction consists of recitations in Infantry, Artillery and Cavalry Drill Regulations, Field Service Regulations, Manual of Guard Duty, Small Arms Firing Regulations, and Army Regulations; instruction in military correspondence and reports and returns; lectures on military subjects that pertain to the organization and administration of the United States military forces in peace and in war.

ROSTER.

Cadet Officers and Non-Commissioned Officers.

Regimental Field and Staff.	
Colonel	S. L. Damon
Lieut. Colonel	E. V. Hawley
Captain, Adjutant	H. B. Auld
Captain, Quartermaster	K. L. Cooper
First Lieut , Com	W. E. Wade
Second Lt. Adjt. Detach	L. A. Bundy

Non-Commissioned Staff.	
Sergeant Major	J. G. Kelly
Quartermaster Sergt	B. H. Greenhaw
Com. Sergt	R. I. Thomson
Col. Sergt	F. L. Fowells
"	W. A. Winniford
Sergt. Maj. Detachs	J. S. Hammel
Sergt. Chief Clerk	E. P. Rawson

Band.

Captain, Leader	H. L. Beard	Drum Major	G. J. Dodson
Chief Musician	Fred Adams	Prin. Musician	C A. Ingle
Sergeant	A. C. Van Cleve	Corporal	C. A. Harlan
"	C. F. Cathey	"	R. B. Adams
"	R. E. Wills	"	O. P. Lumm
"	H. Wilkins		

Signal Detachment.		*Hospital Detachment.*	
Captain	C. V. Swann	Captain	G. A. Cathey
Second Lieutenant	A. E. Burns	Second Lieutenant	J. R. Leach

Sergeant	I. E. Barrett	Sergeant	W. H. Finn
"	F. M. Wilkes	"	A. J. Rich
"	A. A. Garrett	"	A. K. Belknap
Corporal	F. M. Roth	Corporal	G. L. Weaver
"	W. R. Horton	"	E. P. Harding

First Battalion.

Major	Philip Gearhart	First Lieut. Adjt	J. L. Ringo
Second Lieut. Q. M	H. B. Carter	Sergeant Major	C. C. Hollenberg

Company.	"A"	"B"	"C"
Captain	R. C. Jackon	D. R. Groves	G. B von der Hellen
First Lieutenant	W. E. Forsythe	F. M. Hofer	F. C. Ewing
Second Lieutenant	C. R. McCormick	C. S Currin	F. R. Miller
First Sergeant	C. E Bowen	A. R. Barnett	R. W. Allen
Q. M. Sergeant	E. S. Thayer	W. H. Davolt	W. F. Bell
Sergeant	B. F. Elgin	L. A. Thomas	S. L. Bennett
"	O. C. Johnson	H. Bilyeu	E. R. Woods
"	P. C. Rinehart	P. A. Jones	S. A. Brown
"	H. A. Thomson	P. M. Finley	H. D. Eismann
Corporal	K. Cronise	C. O. Davolt	F. W. Canfield
"	W. K. Barnell	F. L. Spires	W. G. Lane
"	R. K. Brodie	R. E. Reynolds	H. C. Leonard
"	R. C. Brodie	R. S. Milln	L. L. Doane
"	D. McMillen	C. A. Purdy	R. Wall
"			W. C. Bryant
Musician	R. H. Cooper	W. H. Horton	R. Spicer

Second Battalion.

Major	R. M. Walker	First Lieut. Adjutant	C G. Brownell
Second Lieut. Q. M	J. W. Finn	Sergeant Major	J. C. Knapp

Company.	"D"	"E"	"F"
Captain	D. C. Little	W. A. Schoel	A. L. Bradley.
First Lieutenant	A. K. Berman	C. M. Stebinger	M. V. Weatherford.
Second Lieutenant	G. C. Cate	H. G. Rumbaugh	W. A. Thomson.
First Sergeant	E. F. Wann	D. G. Thayer	O. H. Schrader.
Q. M. Sergeant	F. Knaus	C. C. Vincent.	S. H. Graff.
Sergeant	E. R Hughes	P. H. Spillman	E. H. Boyer.
"	H. E. Cook	O. R. Spires	J. D. Paul.
"	C. T. West	C. C. Clark	L. J. Rosenstein.
Corporal	E. E. Applewhite	I. W. Carl	C. H. Bolton.
"	C. Sprague	R. H. Hawley	J. H. Hibbs.
"	A. Anderson	J. L. Gilkey	J. M. McMahon.
"	J. E. Hanney	F. Winniford	G. J. Reiling.
"	H. McCall	E. A. Goodrich	Claud Schrack.
"	B. Cunningham	R. Price	C. T. Mundy.
Musician	P. O. Pelland	V. L. Diven	W. R. Walling.

THE EXPERIMENT STATION.

The station bears an important relation to the college, as the scientific investigations conducted at the station strongly support the instruction given in the class-room. Aside from the original investigations of an economic significance to agriculture, the work of the station affords daily object lessons in good modern farming.

About one hundred acres of the college farm are devoted to scientific and experimental farming. Animal husbandry is an important feature of station work. For this branch of the work Shorthorn and Jersey cattle, Cotswold and Shropshire sheep, Berkshire and Chester White swine are maintained. Among these, animals can be found of rare individual excellence, thus offering the student in agriculture an opportunity to study the highest types of the respective breeds.

Extensive field trials are made in the growing of many varieties of cereals, grasses and forage plants, which are utilized in various feeding experiments conducted for the purpose of determining their value as stock foods. This work embraces the study of plant environment and the correlated subject of animal nutrition, thus supporting in a practical manner the science of agriculture as taught in the college.

Dairying is also a prominent feature of the station work. For this purpose a herd of typical dairy cows and a well equipped creamery are maintained. Many problems of vital interest to practical dairymen are constantly being worked out along the lines of rations for cows and methods for handling the herd. The student himself frequently assists in the work and thus obtains tangible evidence of the practical utility of the sciences in dairy husbandry.

The horticultural work of the station affords the student an admirable opportunity for comparing the work of the class room with the practices of the field. Plant breeding, cross pollination of fruits, as well as modern methods of planting, pruning, grafting, spraying and cultivation are all brought immediately under the observation of the student, thus affording him an excellent opportunity to become thoroughly conversant with the science and practice of horticulture.

THE SHORT COURSE IN AGRICULTURE.

To give Oregon farmers who are unable to pursue a four-year course in the Agricultural College, a share in the advantages of higher education, the College has for many years conducted Farmers' Institutes in various parts of the State. But the Institute, while it has its place, has developed another movement of perhaps greater importance, that of holding a more extended Institute, known as the Short Course in Agriculture, Horticulture and Dairying.

The main conception of such schools is, that they are places where people from the farm and orchard—practical farmers and fruit growers—can understandingly study the application of some of the fundamental laws of their occupation. In announcing the Short Course we feel that we can make it thoroughly practical for any intelligent agriculturist, and that we can make scientific agriculture and horticulture both educational and useful. Such a course covers a field which on account of lack of time and apparatus for illustration cannot be undertaken in the regular Farmers' Institutes.

The course consists of a series of popular lectures along lines suited to aid horticulturists, dairymen and others engaged in agricultural pursuits in developing the great natural resources of our state. The lectures are all supplemented by laboratory work under the supervision of experts who strive to make the course thoroughly practical by adapting the work as far as possible to the needs of each individual. The primary study is of things rather than books, and there is always kept in mind the practical side of the matter under discussion. Little time is spent in purely theoretical discussion.

There will be no educational test. No special preparation is necessary as the instruction will be given by lectures and practical work. It is the aim of this course to give to the student the largest possible amount of practical information regarding the various phases of agriculture and horticulture.

An important source of information for those attending this course is the Station and College library where the best books on agriculture, horticulture, and dairying are found. The bulletins of the experiment stations of all the states in the Union are on file at the College and will be at the command of anyone wanting them. These bulletins are invaluable as being about the only source from which one can get information as to the present status of, and the progress that is being made in agricultural and horticultural matters.

An effort will be made to direct the reading along particular lines in such a way that the reader will get in touch with the progressive work that is being done in his particular occupation.

The first lecture of the series will be given at 9 a. m., Tuesday, January 8, 1907, and the course will close on Friday, January 19, 1907.

SPECIAL COURSE IN DAIRYING.

The establishment of the Dairy department of the Oregon Agricultural College on the first floor in the new Agricultural

Hall makes it possible for the institution to give a special course in butter and cheese making and subjects closely related thereto. The management of the institution will offer such a course of six weeks duration, beginning simultaneously with the opening of the short course in agriculture.

The course is designed to familiarize students with the modern forms of dairy apparatus, and to teach the underlying principles of the production, care, and manufacture of milk into butter and cheese. Both the *how* and the *why* will be the aim of the instructors, and it is the intention that the ideas set forth will be applicable to the farm dairy as well as the larger creamery or cheese factory.

Admission.—The dairy course is open to all persons, both male and female, who are at least eighteen years of age and who have a common school education. No entrance examinations will be required, but it is expected that those seeking admission will be able to intelligently understand lectures, take notes, and perform a small amount of text-book work.

Equipment.—More than one-half of the floor space on the first floor of Agricultural Hall is devoted to the dairy department. At the left of the main entrance is the dairy instructor's office, and to the right are located the dairy rooms proper. The main work room, located in the northwest corner, is 24 x 44 feet with cement floor sloping from all directions toward the center where a bell trap connects with the sewer system of the building. This room is equipped with seven of the modern styles of cream separators, operated by either steam or hand power. There are also combined churns and workers, box churns, table workers, receiving and ripening vats, pasteurizer and the necessary apparatus for the manufacture of full cream Cheddar cheese

Adjoining the main work room are lockers for students' use, a well lighted boiler room 16 x 18 and a wood and store room.

In the northeast corner of the building is the Dairy Laboratory 22 x 40 feet, equipped with all the modern devices for testing milk and its products, such as hand and turbine Babcock tests, curd tests, cream scales and automatic acid measures.

Two commodious cheese-curing rooms, 10 x 16 and 12 x 16 feet, complete the quarters of the dairy department.

The college library located in the Administration Building will be open to students of the dairy course. Here access may be had to the leading farm and dairy papers of the United States as well as some foreign publications. Full sets of the bulletins of the various experiment stations and the U. S. Department of Agriculture are on the library shelves, also many valuable books pertaining to dairy matters.

Character of Work.—Students will meet for work six days per week. The forenoon of each day will be devoted to practical work in the dairy rooms. Two days per week will be devoted to cream separation and butter-making, two days to cheese-making, and two will be spent in the dairy laboratory. In the afternoons of all days except those devoted to cheese-making, lectures and recitations will occupy two or three hours. The object of this class-room work is to give the student a better knowledge of the underlying principles upon which the practical dairy operations are based. An outline of the work is given below:

Lecture Work.—*Soil Chemistry and Physics.*—This includes a study of the origin and composition of soils and of the plant food contained in them. Such questions as the conservation of moisture; conditions affecting the water-holding capacity of soils; temperature of soils, etc., discussed and illustrated by experimental work. In this connection the composition and use of fertilizers is considered, including the discussion of both farm manures and commercial fertilizers, their composition, and when and how to use them.

Feeds and Feeding.—This includes the study of forage plants, growth, adaptability, chemical composition and their relationship to successful dairy husbandry—the study of the fundamental principles of animal nutrition, including digestion, assimilation—the composition and feeding value of the different grains and commercial feed stuffs and how they should be fed for best results in milk production.

Milk and Its Products.- -For this work a text-book, "Milk and its Products," by H. H. Wing, is used, supplemented by lectures. Some of the topics covered by the text are: secretion and composition of milk; pasteurization; market milk; the ripening of cream; principles of the Babcock Test; milk for cheese-making; varieties of cheese, etc. Creamery accounts and herd records will also be taken up in this connection.

Dairy Bacteriology.—Lectures and laboratory demonstrations are given relative to the various forms of bacteria which are of interest to the dairyman.

Breeds and Breeding.—A necessary requirement of a successful dairyman is the ability to harmonize breed and environment. Hence this work embraces the study of the origin and characteristics of the leading dairy breeds, adaptability, form as related to function and a general discussion of types.

The College maintains a typical herd of dairy animals comprising representatives of three popular breeds, thus affording the student an excellent opportunity to make comparisons. Stock judging both by the card system and by comparison is a feature of this work.

Chemistry of Dairy Products.—In these lectures the comparison of dairy products is dealt with more in detail than it is possible for the lecturer on dairying to do. In order to bring out and emphasize certain points, these lectures are accompanied by experiments and the examination of dairy products.

Veterinary Science.—This will consist of a general discussion of the causes of the common diseases of cattle, their treatment and best means of prevention. It will also include discussions relative to the usual management and care of the herd and individual members thereof, in health or disease.

Steam Engine.—Discussions and practical work relative to the structure, care and operation of steam engines and boilers, with special reference to the principles involved are held. Four boilers and a like number of engines are available for illustration in this work.

LABORATORY.—*Practical Dairy Work.*—This work consists of extended practice in the use of the Babcock test in determining the percentage of butter fat contained in milk, skim milk, buttermilk, cream, whey, butter, and cheese. Particular attention is given to the use of scales in connection with cream testing. The use of acid tests for determining the ripeness of the cream is considered. Daily practice in the application of results obtained is afforded.

Butter-Making.—Seven latest style cream separators furnish practice in the removal of cream from milk. A combination churn, a trunk churn, and a table worker will illustrate the operations of churning and working butter.

One and two-pound molds, and cutting boxes illustrate the methods of finishing. All work in this line is performed by students under the direction of the instructors.

Cheese-Making.—The manufacture of full cream Cheddar cheese is considered. Attention is given to the small sizes known as Young Americas. Some partly skimmed milk cheese is made to illustrate the effect of the removal of a portion of the cream. The use of various rennet tests is taught, also the hot iron test. Small vats are used in this work in order that each student may have an opportunity to carry the work through from start to finish.

EXPENSES.

Fees.—There will be no fees except a breakage deposit of $3.00, a portion of which will be returned at the close of the term. This deposit is mainly to cover breakage of glassware in the laboratory, and in case of no breakage the fee will all be returned, except a small fee for material.

Board and Lodging is obtainable in Corvallis at $3.00 to $4.00 per week. A list of places may be seen at the office of the Dairy Instructor.

Clothing.—Students are ordinarily required to wear white suits while at work. These can be purchased in the Corvallis stores at $1.00 to $1.50 per suit, consisting of cap, trousers and jacket. A pair of colored overalls will also be found useful at times.

Books.—This item will not exceed $2.00. The only regular text-book will be "Milk and Its Products," by Wing. Some note books will be needed by those who wish to make the most of the course. Anything required in this line can be obtained in Corvallis.

Since only a limited number of students can be accommodated in this course, application for admission should be made to the department of dairying at least two weeks preceding the opening.

The course will open on Tuesday, January 8th, in connection with the opening of the Short Course in Agriculture.

For further particulars regarding the Special Dairy Course address F. L. Kent, Corvallis, Oregon.

FARMERS' INSTITUTES.

One of the most useful methods of diffusing agricultural education is the farmers' institute. These institutes are especially helpful both to the farmer and the experiment worker. The former secures scientific information upon topics of immediate interest to him and is instructed in its practical application to the farm; while the latter is brought to realize more vividly the needs and perplexities of the farmer. It is gratifying to note the growing demand for more of these institutes, and while the station is ever ready to accede to these demands, it is, however, becoming annually more difficult on the part of the station officials to fulfill these obligations, owing to the constant increase in the work of the station.

LIBRARY.

RICHARD JEFFREY NICHOLS, B. S., Librarian.

The library occupies a large, well-lighted room on the first floor of the administration building, and contains nearly 4000 bound volumes of standard works on history, literature, arts, sciences, general subjects and fiction; as many more bound volumes of U. S. government publications and about 10,000 pamphlets and bulletins. Care has been exercised in the selection of books in order that each department may have proper works of reference at the disposal of the student.

A card catalogue is used and the books are indexed according to subject by the decimal system, and alphabetically according to title and author, so that the use of the library is greatly facilitated and its resources upon any subject easily ascertained.

The library receives the leading literary and scientific magazines and journals, all of which are kept on file.

The library is open for the issuing of books every school-day from 8 a. m. to 5 p. m., and during that time the librarian is in constant attendance. Books, excepting cyclopedias and works of general reference, may be drawn out by students for a period not exceeding two weeks.

LIST OF STUDENTS.

GRADUATES.

NAME.	POSTOFFICE.	COUNTY.
William Gustave Abraham, B. S.,	Albany,	Linn.
Lucile Jean Buxton, B. S.,	Hood River,	Wasco.
Mary Cecil Danneman, B. S.,	Clem,	Gilliam.
Anna Mary Denman, B. L.,	Union,	Union.
Lura Lovene Flett, B. S.,	Fisher,	Lincoln.
Joseph Garrow, B. S.,	Oregon City,	Clackamas.
Grace Gatch, A. B. (University of Washington).	Seattle,	Washington State.
Alice Jones, B. S.,	Suver,	Polk.
Bert Trew Jordan, B. S.,	Albany,	Linn.
Ethel Elenor Linville, B. S.,	Corvallis,	Benton.
Edna Marie Osburn, B. S.,	Corvallis,	Benton.
Bert Pilkington, B. S.,	Oakland,	Douglas.
Sohan Lall Ravi, C. C., (Punjab University)	Armitrar,	India.
Harvey Earl Rinehart, B. S.,	The Dalles,	Wasco.
Otto Gerald Simpson, B. S.,	Suver,	Polk.
Mahesh Charan Sinha, A. B., (Tallahobad University).	Lucknow,	India.
Abram Hercules Steckle, M. E.,	Reno,	Nevada.
Floyd Williams, B. S.,	Airlie,	Polk.

SENIORS.

Name	Course	Postoffice	County
Fred Adams,	Phar.,	Roseburg,	Douglas.
Harry Benjamin Auld,	L. C.,	Woodburn,	Marion.
Miles Bebee Belden,	Min.,	Cove,	Union.
Arthur Edward Belknap,	Mech.,	Corvallis,	Benton.
Ethel Berman,	H. S.,	Decatur, Illinois.	
Arthur George Bouquet,	Agri.,	Purley, England.	
Alfred Leroy Bradley,	Elec.,	Portland,	Multnomah.
Lyman Albert Bundy,	Phar.,	Moscow, Idaho.	
Archibald Eugene Burns,	Elec.,	Beaverton,	Washington.
Grover Cleveland Cate	Agri.,	Hillsboro,	Washington.
Alice Leora Edwards,	H. S.,	Monroe,	Benton.

Joel Emily,	Mech.,	Troutdale,	Multnomah.
Fred Clark Ewing,	Agri.,	Oswego,	Clackamas.
Julia Fuller,	H. S.,	Corvallis,	Benton.
Arthur Amos Garrett,	Min.,	Albany,	Linn.
Philip Gearhart,	Mech.,	Astoria,	Clatsop.
Howard Clayton Getz,	Min.,	Portland,	Multnomah.
Maud Crenshaw Graves,	H. S.,	Odell,	Klamath.
Mertie Harrington,	H. S.,	Omaha,	Nebraska.
Earl Vincent Hawley,	Elec.,	Monroe,	Benton.
Maggie Maud Hays,	H. S.,	Tangent,	Linn.
Annie Laura Hill,	L. C.,	Hood River,	Wasco.
Mary Alicia Hill,	H. S.,	Hood River,	Wasco.
Max Arthur Hinrichs,	Elec.,	Hood River,	Wasco.
Walter Ralph Horton,	Elec.,	Prineville,	Crook.
Rose Mildred Ingram,	H. S.,	Monroe,	Benton.
Robert Combs Jackson,	Agri.,	Portland,	Multnomah.
John Carl Knapp,	Phar.,	Oregon City,	Clackamas.
Weaver Thomas Martin,	Elec.,	McMinnville,	Yamhill.
Belle Kate Mattley,	H. S.,	Lewisville,	Polk.
Cyrus Ross McCormick,	Min.,	Lebanon,	Linn.
Margaret Kathryn McCormick,	H. S.,	Lebanon,	Linn.
Sarah Stella Parsons,	H. S.,	Albany,	Linn.
Minnie Ethel Phillips,	H. S.,	Corvallis,	Benton.
Elmer Philander Rawson,	L. C.,	Vancouver,	Washington.
Joseph Lucine Ringo,	Min.,	Mollala,	Clackamas.
Fred Miller Roth,	Min.,	Canby,	Clackamas.
Floyd Elba Rowland,	Elec.,	Shedd,	Linn.
William Amile Schoel,	Elec.,	Albany,	Linn.
Claud Schrack,	Agri.,	Tangent,	Linn.
Claude Vivian Swann,	Mech.,	Buena Vista,	Polk.
Wallace Atwood Thompson,	Agri.,	Echo,	Umatilla.
Albert Pearl Tedrow,	Elec.,	Monmouth,	Polk.
Archie Clifford VanCleve,	Phar.,	Baker City,	Baker.
Agnes von de Hellen,	L. C.,	Wellen,	Jackson.
Walter Eakin Wade,	Mech.,	Wallowa,	Wallowa.
Guy Leonard Weaver,	Phar.,	Salem,	Marion.

Bessie Hart Wilson,	L. C.,	Canyonville,	Douglas.
Walter Asa Winniford,	Agri.,	KingsValley,	Benton.

JUNIORS.

Name	Course	Postoffice	Connty
Kate Dolores Adams,	L. C.,	MyrtleCreek,	Douglas.
Ralph Wilmer Allen,	Agri.,	Rickreall,	Polk.
Avery Lamar Applewhite,	Agri.,	Tillamook,	Tillamook.
Arthur Rex Barnett,	Elec.,	Portland,	Multnomah.
Elizabeth Nina Bell,	H. S.,	Beaver City,	Nebraska.
William Frank Bell,	Elec.,	Beaver City,	Nebraska.
Belle Rebecca Bonney,	H. S.,	Woodburn,	Marion.
Myrtle Ruth Burnap,	L. C.,	Philomath,	Benton.
Cecil Carl Clark,	Agri.,	Barton,	Clackamas.
Pauline Davis,	H. S.,	Newport,	Lincoln.
Clinton Orr Dicken,	Phar.,	Hood River,	Wasco.
Pearl Evangeline Edwards,	L. C.,	Dell,	Malheur.
Charles Warren Fullerton,	Elec.,	Alsea,	Benton.
Helen Margaret Gilkey,	H. S.,	Montesano,	Washington.
Benjamin Howard Greenhaw	Min.,	Portland,	Multnomah.
John Leonidas Griffith,	Mech.,	Omaha,	Nebraska.
Del Roy Groves,	Elec.,	Portland,	Multnomah.
Cyrus Ashley Harlan,	L. C.,	Beatrice,	Nebraska.
Fred Miller Hofer,	Min.,	Marshfield,	Coos.
Vera Delle Horner,	L. C.,	Corvallis,	Benton.
Charles Ludlow Huff,	Min.,	Portland,	Multnomah.
James Blanco Jones,	Elec.,	Suver,	Polk.
James Garfield Kelly,	H. S.,	Lents,	Multnomah.
Fred Knaus,	Elec.,	Oswego,	Clackamas.
Jens Lingaas,	Min.,	Portland,	Multnomah.
Charles, David Little,	Min.,	Houlton,	Columbia.
Ralph Waldo McNeil,	Elec.,	Portland,	Multnomah.
Lewis Wallace Metzger,	Elec.,	Gresham,	Multnomah.
Madeline Lenore Nichols,	H. S.,	Monroe,	Benton.
Jesse Earl O'Neel,	Phar.,	LaFayette,	Yamhill.
Bessie Parsons,	H. S.,	Albany,	Linn.
Winnie Parsons,	H. S.,	Albany,	Linn.

James Donald Paul,	Mech.,	Portland,	Multnomah.
Arthur James Rich,	Phar.,	Astoria,	Clatsop.
Leatha Lenore Rickard,	H. S.,	Corvallis,	Benton.
Harold Goltra Rumbaugh,	Min.,	Albany,	Linn.
Louis Schoel,	Mech.,	Albany,	Linn.
Royal Raymond Selleck,	Elec.,	Boyd,	Wasco.
Carl Bryant Smith,	Phar.,	Carson,	Washington.
Roger Spicer,	Elec.,	Antelope,	Wasco.
Carl Marion Stebinger,	Elec.,	Portland,	Multnomah.
Darwin Greene Thayer,	Agri.,	Rainier,	Columbia.
Edward Sprague Thayer,	Elec.,	Rainier,	Columbia.
Clarence Cornelius Vincent,	Agri.,	KingsValley,	Benton.
Erwin Fred Wann,	Min.,	Salem,	Marion.
Mark Verne Weatherford,	L. C.,	Olex,	Gilliam.
Jessie Agnes Wilson,	L. C.,	Canyonville,	Douglas.

SOPHOMORES.

Name	Course	Postoffice	County
Ross Brayton Adams,	Mech.,	Warren,	Columbia.
Arvid Anderson,	Mech.,	Corvallis,	Benton.
Harry Asbahr,	Agri.,	Hillsboro,	Washington.
Walter Rawalt Baker,	Mech.,	Macleay,	Marion.
Warren Keifer Barnell,	Mech.,	La Grande,	Union.
Carl Jackson Bartlett,	Mech.,	Drewsey,	Harney.
Louis Bennett,	Agri.,	Medford,	Jackson.
Arthur Karl Berman,	Phar.,	Decatur,	Illinois.
William Cowan Bolton,	Mech.,	Enterprise,	Wallowa.
Charles Edwin Bowen,	Min.,	Oysterville,	Wash.
Leon Terry Bowser,	Mech.,	Silverton,	Marion,
Robert Chester Brodie,	Agri.,	Lents,	Multnomah.
Renton Kirkwood Brodie,	Agri.,	Lents,	Multnomah.
Sherman Asher Brown,	Mech.,	Ft.Klamath,	Klamath.
Cyril Gideon Brownell,	Agri.,	Umatilla,	Umatilla.
Carrie Buchanan,	H. S.,	Corvallis,	Benton.
Elmer Buchanan,	L. C.,	Corvallis,	Benton.
Mildred Buchanan,	H. S.,	Corvallis,	Benton.
Mabel Burdette Cady,	L. C.,	Holbrook,	Nebraska.

Ralph Cady,	Mech.,	Holbrook,	Nebraska.
Ross Cady,	L. C.,	Holbrook,	Nebraska.
Claud Franklin Chambers,	L. C.,	KingsValley,	Benton.
Lincoln Beaumont Chambers,	Mech.,	KingsValley,	Benton.
Norris, Everard Chapin,	Mech.,	Walla Walla,	Wash.
Philip Jodrell Cherry,	Mech.,	Astoria,	Clatsop.
Elva Chrisinger,	L. C.,	Pendleton,	Umatilla.
Conrad Christianson,	Mech.,	Toledo,	Lincoln.
John Jay Clark,	Mech.,	Portland,	Multnomah.
Herbert Edward Cooke,	Min.,	Shaniko,	Wasco.
Harry Kratz Cronise,	Mech.,	Portland,	Multnomah.
Claud Olson Davolt,	Mech.,	Catlin,	Washington.
William Harling Davolt,	Mech.,	Catlin,	Washington.
Glen DeHaven,	Phar.,	Shedds,	Linn.
Leslie Lewis Doane,	L. C.,	Sumpter,	Baker.
Samuel Michael Dolan,	Min.,	Albany,	Linn.
Edgar Wade Donelly,	Agri.,	Richmond,	Wheeler.
Margaret Dunlap,	Phar.,	Shedds,	Linn.
William James Dunlap,	Mech.,	Shedds,	Linn.
Mildred Elanore Dyer,	H. S.,	Albany,	Linn.
Gustave Frederick Eilers,	L. C.,	Aurora,	Marion.
Mary Elgin,	Phar.,	Corvallis,	Benton.
Percy Marvin Finley,	Agri.,	JunctionCity,	Lane.
Fred Noble Fox,	Mech.,	La Grande,	Union.
Samuel Herman Graf,	Mech.,	LaFayette,	Yamhill.
Nelson Gunderson,	L. C.,	Sodaville,	Linn.
Frank Edward Hall,	Min.,	Milwaukie,	Clackamas.
John Edward Hanny,	Mech.,	Oregon City,	Clackamas.
Lora Hansell,	L. C.,	Corvallis,	Benton.
Ethel Marian Higdon,	H. S.,	Canon City,	Colorado.
Arthur Donald Hill,	Mech.,	Hood River,	Wasco.
Joseph William Howard,	Phar.,	Prineville,	Crook.
Arthur Drummond Hughes,	Mech.,	Baker City,	Baker.
Cleo Lorena Johnson,	H. S.,	Scio,	Linn.
Oliver Clarence Johnson,	Min.,	John Day,	Grant.
Paul Jones,	Min.,	Ontario,	Malheur.

William Robert Jones,	L. C.,	Suver,	Polk.
Lela Jane Kelsay,	H. S.,	Hood River,	Wasco.
Fred Kerr,	Phar.,	Corvallis,	Benton.
Bertha Anna King,	H. S.,	Corvallis,	Benton.
William Clark Lawrence,	Mech.,	Reno, Nevada.	
John Roy Leach,	Phar.,	Lexington,	Morrow.
Percy Albert Lockwood,	Mech.,	Portland,	Multnomah.
Oliver Porter Lumm,	Mech.,	Dayton,	Yamhill.
James Hugh McCall,	Agri.,	La Grande,	Union.
Adah McDonald,	L. C.,	Grants Pass,	Josephine.
David McMillan,	Mech.,	Oregon City,	Clackamas.
John Melhase,	Min.,	Ft. Klamath,	Klamath.
Frank Roland Miller,	Phar.,	Corvallis,	Benton.
Victor Ernest Niederer,	Mech.,	Summerville,	Union.
Asa Holcolm Post,	Agri.,	Dayton,	Yamhill.
George Joseph Reiling,	Min.,	Parkplace,	Clackamas.
Ralph Elmer Reynolds,	Agri.,	La Grande,	Union.
Clyde Rhodes,	Min.,	Ashland,	Jackson.
Lulu Ruth Rice,	L. C.,	Clear Lake,	Iowa.
Philip Cooper Rinehart,	Phar.,	The Dalles,	Wasco.
Charles Lawrence Rogers,	Phar.,	Astoria,	Clatsop.
George Herbert Root,	Agri.,	Wasco,	Sherman.
Edna Mae Russ,	H. S.,	Ashland,	Jackson.
Linwood Burt Russel,	Phar.,	Baker City,	Baker.
Charles Fabius Schirmer,	Min.,	Oregon City,	Clackamas.
Mary Rosa Scoggin,	H. S.,	Laidlaw,	Crook.
Thomas Roy Sleight,	Mech.,	Oregon City,	Clackamas.
Ernest James Smith,	Phar.,	Medford,	Jackson.
Ralph Edward Smith,	Agri.,	Salem,	Marion.
Paul Herman Spillman,	Agri.,	Mt. Tabor,	Multnomah.
Fred Lloyd Spires,	Mech.,	MyrtlePoint,	Coos.
Oliver Ritchie Spires,	Phar.,	MyrtlePoint,	Coos.
Alva Edwin Stovall,	L. C.,	Philomath,	Benton.
Earle Leland Sweek,	L. C.,	Burns,	Harney,
Howard Weston Taber,	Mech.,	Sheridan,	Yamhill.
Herbert Augustus Thompson,	Mech.,	Canby,	Clackamas.

Ralph Infield Thompson,	Mech.,	Heppner,	Morrow.
Walter Robertson Waggoner,	Phar.,	Corvallis,	Benton.
Dow Vernon Walker,	L. C.,	St. Johns,	Multnomah.
Rupert Wall,	Mech.,	Early,	Sherman.
Bertha Estella Watrous,	L. C.,	Olympia,	Washington.
Eugene Cyrus Wiggen,	Mech.,	Westport,	Clatsop.
Marion Francis Wilkes,	Min.,	Cripple Creek,	Colo.
Harold Wilkins,	L. C.,	Corvallis,	Benton.
John Franklin Winniford,	Mech.,	KingsValley,	Benton.
John Withycombe,	Agri.,	Portland,	Multnomah.
Alvah Athenas Witzig,	Mech.,	Parkplace,	Clackamas.
Walter Ernest Wood,	Mech.,	Corvallis,	Benton.
David Alvis Wright,	Mech.,	Woodburn,	Marion.

FRESHMEN.

Name	Course	Postoffice	County
Sidney Thomas Abbott,	Min.,	Corvallis,	Benton.
Abraham Gaylord Adams,	Agri.,	Hoquiam,	Washington.
Everett Edward Allen,	L. C.,	Hood River,	Wasco.
Hazel Allen,	H. S.,	Hood River,	Wasco.
John Warwick Allen,	Mech.,	Baker City,	Baker.
Harrison Courtney Ames,	Mech.,	Sweet Home,	Linn.
Harry Leon Andrews,	Mech.,	Portland,	Multnomah.
William Sylvester Angus,	Mech.,	Gardiner,	Douglas.
Ernest Everette Applewhite,	Phar.,	Roseburg,	Douglas.
Thomas John Autzen,	Mech.,	Hoquiam,	Washington.
Ernest Avery,	L. C.,	Corvallis,	Benton.
Edgar Bruce Ayers,	Mech.,	Heppner,	Morrow.
Charles Irwin Barnes,	Phar.,	Elgin,	Union.
Ira Ellis Barrett,	Phar.,	Hillsboro,	Washington.
Fred Lawrence Beach,	Agri.,	Hillsboro,	Washington.
Nellie Bell Beers,	L. C.,	JordanV'll'y,	Malheur.
Roy William Bell,	Mech.,	Corvallis,	Benton.
Sadie Bell,	H. S.,	Beaver City,	Nebraska.
Charles Franklin Benshadler,	Mech.,	Elgin,	Union.
George Benshadler,	Mech.,	Elgin,	Union.
Albert Francis Bernard,	Mech.,	Beaverton,	Washington.

Hamon Shelley Bilyeu,	Min.,	Athena,	Umatilla.
Otto Carl Blackaby,	Mech.,	Ontario,	Malheur.
George Hiram Blackmun,	Phar.,	Woodburn,	Marion.
Harry, Emile Blevins,	Mech.,	Cove,	Union.
Cecile Boswell,	H. S.,	Vale,	Malheur.
Robert Edgar Bower,	Agri.,	Silverton,	Marion.
Harry Bowman,	Mech.,	Hillsboro,	Washington.
Edward Hoag Boyer,	Phar.,	Portland,	Multnomah.
Thomas Frank Brewster,	Phar.,	Adams,	Umatilla.
William Cullen Bryant,	Mech.,	Woodburn,	Marion.
Leslie Cade,	Agri.,	Salem,	Marion.
Philip Harrison Cale,	L. C.,	Albany,	Linn.
John Lee Caldwell,	Mech.,	Burns,	Harney.
Edward Cleveland Calloway,	Phar.,	Ontario,	Malheur.
Fred Ward Canfield,	Mech.,	Ontario,	Malheur.
Ira Wallace Carl,	L. C.,	MyrtlePoint,	Coos.
Geo. Bartholomew Carmichael,	L. C.,	Weston,	Umatilla.
Henry Carter,	Mech.,	Ashland,	Jackson.
Ray Castle,	Mech.,	Vale,	Malheur.
Collie Flint Cathey,	Agri.,	Woodburn,	Marion.
George Andrew Cathey,	Phar.,	Woodburn,	Marion.
Alex. Kesterson Chapman,	Mech.,	Grants Pass,	Josephine.
Donald Winthrop Chapman,	Min.,	Troutdale,	Multnomah.
Sherman Alban Chappell,	Phar.,	Corvallis,	Benton.
John Clark,	Mech.,	Alicel,	Union.
Roy Ross Clark,	Mech.,	Barton,	Clackamas.
John Edward Coleman,	Phar.,	Harrisburg,	Linn.
Inez Romana Colvig,	Phar.,	Canyonville,	Douglas.
James Marion Conner,	L. C.,	Enterprise,	Wallowa.
Robert Alvin Cook,	Mech.,	Albany,	Linn.
Kenneth Leigh Cooper,	Agri.,	The Dalles,	Wasco.
Roy Francis Cooper,	Phar.,	Corvallis,	Benton.
Grace Cramer,	L. C.,	Holbrook,	Nebraska.
George Albert Cross,	Mech.,	Dundee,	Yamhill.
Elmer Raymond Crowe,	Mech.,	Lorane,	Lane.
Burton Leigh Cunningham,	Min.,	Ft. Klamath,	Klamath.

Charlton Straw Currin,	Phar.,	KlamathFalls,	Klamath.
Cleve John Currin,	Agri.,	Ione,	Morrow.
Harvey William Currin,	Min.,	Ione,	Morrow.
Linnie Edith Currin,	H. S.,	Ione,	Morrow.
Amy Cyrus,	H. S.,	Crabtree,	Linn.
Nellie Cyrus,	H. S.,	Crabtree,	Linn.
Samuel Lyman Damon,	L. C.,	Independence,	Polk.
Gertrude Luella Davidson,	H. S.,	Ione,	Morrow.
William Frank Davies,	Agri.,	Ashland,	Jackson.
John Emerson Davis,	L. C.,	Shedds,	Linn.
Bessie Dilley,	L. C.,	Corvallis,	Benton.
Minnie Diven,	L. C.,	Vale,	Malheur.
Vernon Lewis Diven,	L. C.,	Vale,	Malheur.
Ezra Stephen Dixon,	Mech.,	Cornelius,	Washington.
Roscoe Britten Doane,	Phar.,	Sumpter,	Baker.
Earl Irving Donelson,	Mech.,	Hillsboro,	Washington.
Eugene Earl Dudley,	Agri.,	Athena,	Umatilla.
Alma Ray Edwards,	H. S.,	Dell,	Malheur.
Joseph Earl Edwards,	Mech.,	Monroe,	Benton.
Velma Ethel Edwards,	H. S.,	Mayville,	Gilliam.
Henry Detlef Eisman,	Phar.,	Grants Pass,	Josephine.
Ben Elgin,	Phar.,	Corvallis,	Benton.
DeWalt Quinn Elrod,	Phar.,	Grass Valley,	Sherman.
Alfred John Evans,	L. C.,	Mosier,	Wasco.
Karl William Farnsworth,	Agri.,	Heppner,	Morrow.
Henry Ward Farrell,	Agri.,	Scappoose,	Columbia.
Bert Felton,	Phar.,	Corvallis,	Benton.
John Waldo Finn,	Mech.,	McCoy,	Polk.
William Harry Finn,	Phar.,	La Grande,	Union.
Henry Pervine Fisher,	Agri.,	Haines,	Baker.
Robert Edmund Fletcher,	Mech.,	Ontario,	Malheur.
Warren Elsworth Forsythe,	Phar.,	Enterprise,	Wallowa.
Samuel Lane Foster,	Agri.,	JunctionCity,	Lane.
Thomas Edward Foster,	Phar.,	Athena,	Umatilla.
Frank LaVerne Fowells,	Mech.,	Fayette, Iowa.	
Charles Augustus French,	Agri.,	Corvallis,	Benton.

Dell Rawson French,	L. C.,	GrassValley,	Sherman.
Henry Sidney French,	Agri.,	Corvallis,	Benton.
Frank Asberry Galloway,	Phar.,	Elgin,	Union.
Joseph Allen Ganong,	Phar.,	Oregon City,	Clackamas.
Winnifred Evangeline Gates,	H. S.,	Corvallis,	Benton.
Frances Violet Gellatly,	L. C.,	Philomath,	Benton.
Jesse Gilkey,	Mech.,	Montesano,	Washington.
Edward Aseph Goodrich,	Mech.,	Lebanon,	Linn.
Thomas Radir Graham,	Phar.,	Corvallis,	Benton.
Harold Roscoe Graves,	Phar.,	Sumpter,	Baker.
Greta India Gray,	L. C.,	Arapahoe,	Nebraska.
Azora Gregg,	H. S.,	Ballston,	Polk.
Henry Connor Gregg,	L. C.,	Ballston,	Polk.
Frederick Llewellyn Griffin,	Agri.,	Canby,	Clackamas.
Merril Eugene Groshong,	Phar.,	Enterprise,	Wallowa.
Bernhard John Groth,	Mech.,	Dundee,	Yamhill.
Grover Jameson,	L. C.,	Burns,	Harney.
Sylvester Benjamin Hall,	Mech.,	Cleone,	Multnomah.
Stanley Hammel,	Phar.,	Portland,	Multnomah.
Violet Irene Hancock,	L. C.,	Cove,	Union.
Earl Paul Harding,	Phar.,	Gaston,	Washington.
Charley Harris,	Mech.,	Vale,	Malheur.
Cora Hawley,	L. C.,	Monroe,	Benton.
Jessie Myrtle Hawley,	L. C.,	GrassValley,	Sherman.
Ralph Hamilton Hawley,	Min.,	Monroe,	Benton.
William Hawley,	Mech.,	Wildwood,	Lane.
Charley Henry Hays,	Agri.,	Sherwood,	Washington.
William Albert Hensley,	Mech.,	Troutdale,	Multnomah.
John Halver Hibbs,	Mech.,	Gaston,	Washington.
Charlie William Hickey,	Mech.,	Portland,	Multnomah.
John Elmer Higdon,	Mech.,	New Castle,	Colorado.
Ralph Hinrichs,	Mech.,	Hood River,	Wasco.
Claire Holgate,	L. C.,	Baker City,	Baker.
Clare Conrad Hollenberg,	L. C.,	New Providence,	Iowa.
Soren F. Holm,	Mech.,	Milwaukie,	Clackamas.
Alicia Pearl Horner,	L. C.,	Corvallis,	Benton.
Charles Henry Hoyt,	Mech.,	Jefferson,	Marion.

Ernest Alsworth Hudson,	Mech.,	Milton,	Umatilla.
Floyd Huff,	Phar.,	Corvallis,	Benton.
Edward Richard Hughes,	Mech.,	Oregon City,	Clackamas.
Clarence Felix Hyde,	Min.,	Weston,	Umatilla.
Finlay Imbert,	L. C.,	Wheeler,	Washington.
Jessie Esther Imbler,	H. S.,	Enterprise,	Wallowa.
Mattie Imbler,	L. C.,	Enterprise,	Wallowa.
Calvin Ingle,	Phar.,	Wasco,	Sherman.
Forrest Scott Ivanhoe,	L. C.,	La Grande,	Union.
Grover Newton Jameson,	L. C.,	Burns,	Harney.
Clarence William Johnson,	Phar.,	Newberg,	Yamhill.
Florence Elva Johnson,	L. C.,	John Day,	Grant.
Lawrence Rowland Johnson,	Agri.,	Vale,	Malheur.
Verne Lewis Johnson,	L. C.,	John Day,	Grant.
Zeta Alma Johnson,	H. S.,	Scio,	Linn.
Earnest Eugene Jones,	Phar.,	Selma,	California.
Robert Henry Jones,	Mech.,	Suver,	Polk.
Ralph Adrian Keiser,	Agri.,	Spirit Lake,	Iowa.
Edythe Harriet Keady,	H. S.,	Corvallis,	Benton.
Loyd Homer Kelty,	Phar.,	N. Yamhill,	Yamhill.
Mabel Harriette Kinnison,	H. S.,	Baker City,	Baker.
Wanda Christina Knox,	H. S.,	Centralia,	Washington.
James Koeber,	Agri.,	Sherwood,	Washington.
Roscoe Verne Lake,	Agri.,	Corvallis,	Benton.
William Robert Lancefield,	L. C.,	Amity,	Yamhill.
William George Lane,	L. C.,	Harrisburg,	Linn.
Ada Mae Lay,	L. C.,	Joseph,	Wallowa.
Marshall James Lazelle,	Agri.,	Oregon City,	Clackamas.
Charles Herbert Leonard,	Mech.,	Sheridan,	Yamhill.
Homer Clarence Leonard,	L. C.,	Sheridan,	Yamhill.
Letticia Pearl Leonard,	L. C.,	Sheridan,	Yamhill.
Linnie Edna Lerwill,	H. S.,	Junction City,	Lane.
Ena Leverett,	H. S.,	Fayetteville,	Arkansas.
Sidney Witham Leverett,	Agri.,	Fayetteville,	Arkansas.
James Rhea Luper,	Min.,	Heppner,	Morrow.
Fred Deininger Luse,	Mech.,	Oregon City,	Clackamas.

Isabelle Mallett,	H. S.,	Ontario,	Malheur.
William Lester Marrs,	Mech.,	Oregon City,	Clackamas.
Azariah Lewis Maule,	Mech.,	Medford,	Jackson.
Rex Roy May,	Mech.,	Turner,	Marion.
Nelson Fred McColl,	Mech.,	Gresham,	Multnomah.
Russell Alfred McCully,	Agri.,	Joseph,	Wallowa.
Edmund Samuel McElligott,	Mech.,	Ione,	Morrow.
Alice Marie McGinnis,	L. C.,	Moro,	Sherman.
Fred Marshall McHenry,	L. C.,	Corvallis,	Benton.
John Bliss McKennon,	Mech.,	Alicel,	Union.
Robert Frank McKennon,	Agri.,	Alicel,	Union.
William Wallace McKenzie,	Mech.,	Fossil,	Linn.
Wayne Carl McLagan,	Mech.,	Tangent,	Wheeler.
Leva Chester McLain,	Phar.,	Sumpter,	Baker.
Herbert Berry McLane,	Mech.,	Lyons,	Linn.
James Stewart McMahan,	L. C.,	Corvallis,	Benton.
Mabel Claire McNabb,	H. S.,	Ione,	Morrow.
Elmer Metzger,	Min.,	Gresham,	Multnomah.
Winnie Pearl Michael,	Phar.,	Corvallis,	Benton.
Earl August Miebus,	Mech.,	Portland,	Multnomah.
Edyth Eleanora Miller.	L. C.,	Drewsey,	Harney.
Maxwell Elliott Mitchell,	Min.,	Portland,	Multnomah.
Leon Montgomery,	L. C.,	Scio,	Linn.
Kate Irene Moore,	L. C.,	Echo,	Umatilla.
Donald Fain Morgan,	Mech.,	Portland,	Multnomah.
John Armour Muldrick,	Mech.,	Canyon City,	Grant.
Clark Taylor Mundy,	Phar.,	Mt. Tabor,	Multnomah.
Charles Leon Murphy,	L. C.,	Monmouth,	Polk.
Claude Murphy,	Min.,	Independence,	Polk.
Chester Arthur Myers,	Phar.,	Jefferson,	Marion.
Clarence Shelley Murray,	Mech.,	North Yakima,	Wash.
Roscoe, Neal,	Mech.,	Baker City,	Baker.
George Allen Nelson,	Agri.,	Dixie,	Washington.
Lelia Aneil Newhouse,	L. C.,	Corvallis,	Benton.
Roy Ernest Nichols,	Phar.,	Portland,	Multnomah.
Winnifred Osten,	H. S.,	Heppner,	Morrow.

Jud Oviatt,	L. C.,	Buell,	Polk.
May Oviatt,	H. S.,	Buell,	Polk.
Charles Taylor Parker,	Min.,	Salem,	Marion.
Philip Oliver Pelland,	Mech.,	St. Paul,	Marion.
Bessie Pogue,	H. S.,	Ontario,	Malheur.
Lester Wright Porterfield,	L. C.,	Parkers,	Polk.
Lois Lucinda Pratt,	H. S.,	Corvallis,	Benton.
Roy Wilber Price,	L. C.,	Scappoose,	Columbia.
Horace Minor Propst,	Mech.,	Albany,	Linn.
Mohammed Abduh Rashid,	Agri.,	Gorakhpur,	India.
Richard Jarvis Read,	L. C.,	Jordan Valley,	Malheur.
Nollie Frank Reed,	Phar.,	Burns,	Harney.
Charles Francis Roberts,	L. C.,	Hood River,	Wasco.
Robert Henry Rodgers,	Mech.,	Portland,	Multnomah.
Henry Rooper,	Agri.,	Antelope,	Wasco.
John August Rooper,	Agri.,	Antelope,	Wasco.
Burrus Estes Rose,	Phar.,	Airlie,	Polk.
Gordon Custer Rosendorf,	Phar.,	Corvallis,	Benton.
ModestaFlorenceRosendorf,	L. C.,	Corvallis,	Benton.
Leo Rosenstein,	Mech.,	Oregon City,	Clackamas.
Henry Salvon,	Phar.,	Astoria,	Clatsop.
Eugene Schiller,	Min.,	Sylvan,	Multnomah.
Alfred Schoel,	Phar.,	Albany,	Linn.
Charley Vernon Schrack,	Agri.,	Tangent,	Linn.
Otto Harrison Schrader,	Mech.,	Tillamook,	Tillamook.
John Godfrey Schroeder,	L. C.,	Portland,	Multnomah.
Edgar Senders,	Mech.,	Harrisburg,	Linn.
Audie Wave Shelton,	L. C.,	Scio,	Linn.
Robert Jerome Shepard,	Agri.,	Salem,	Marion.
Arthur Wesley Simmons,	Mech.,	Silverton,	Marion.
Ina Myrtle Simpson,	L. C.,	Corvallis,	Benton.
Charles Samuel Spain,	L. C.,	Joseph,	Wallowa.
Mamie Warren Sparkman,	H. S.,	Woodland,	California.
Claude Bates Sprague,	Agri.,	Oregon City,	Clackamas.
Helen Maude Sprague,	H. S.,	Oregon City,	Clackamas.
Irvin Earl Small,	Agri.,	Silver Lake,	Lake.

Adolph Harry Schmidt,	Mech.,	The Dalles,	Wasco.
Arthur Byron Smith,	Mech.,	Newberg,	Yamhill.
Hubert Smith,	L. C.,	Moro,	Sherman.
Forrest Custer Smithson,	L. C.,	Portland,	Multnomah.
Claire Weltha Starr,	L. C.,	JunctionCity,	Lane.
Grace Elizabeth Starr,	H. S.,	Belfountain,	Benton.
Cedric Hiram Stone,	Agri.,	Cleone,	Multnomah.
John Curtis Strebin,	Mech.,	Troutdale,	Multnomah.
Marcus Struve,	Agri.,	Pendleton,	Umatilla.
Samuel Pliney Sutton,	Mech.,	Portland,	Multnomah.
William Dantzler Sutton,	Mech.,	Portland,	Multnomah.
Calvin Lawrence Sweek,	L. C.,	Monument,	Grant.
Durland Orville Taggart,	Mech.,	Vale,	Malheur.
Lawrence Leroy Taylor,	Agri.,	Fossil,	Wheeler.
Zack Layfette Taylor,	L. C.,	Corvallis,	Benton.
Owen Hancock Test,	Mech.,	Ontario,	Malheur.
Stephen Montgomery Tharp,	Mech.,	Corvallis,	Benton.
Lee Arden Thomas,	Mech.,	Huit,	Washington.
Grace Thomson,	L. C.,	Vale,	Malheur.
Carrie Edna Thrasher,	H. S.,	Corvallis,	Benton.
Jesse Almond Tiffany,	Agri.,	Portland,	Multnomah.
Lulu Turner,	L. C.,	Dallas,	Polk.
Herbert Ray Tyler,	Agri.,	Lents,	Clackamas.
Luella VanCleve,	H. S.,	Baker City,	Baker.
Evans Craig Varner,	Mech.,	Marx,	Tillamook.
Perl Vincent,	H. S.,	Corvallis,	Benton.
John Oscar Vines,	Mech.,	Vale,	Malheur.
George Bruce von der Hellen,	Min.,	Wellen,	Jackson.
Laura Benton Waggoner,	H. S.,	Corvallis,	Benton.
Harry Byrd Waggoner,	Min.,	Corvallis,	Benton.
Murland Edwin Waelty,	Mech.,	Wallowa,	Wallowa.
John Benjamin Walden,	Phar.,	Milton,	Umatilla.
Ray Mike Walker,	L. C.,	Indep'dence,	Polk.
Homer Stacy Wall,	Mech.,	Early,	Sherman.
Edwin Wheeler Wallace,	Mech.,	Indep'dence,	Polk.
Walter Walling,	Mech.,	Oswego,	Clackamas.
Charles Adam Watts,	Mech.,	Pullman,	Washington.

Clarence Theodore West,	Mech.,	Olex,	Gilliam.
George Ernest Whitcomb,	Min.,	Foster,	Linn.
Austin Joy White,	Mech.,	KlamathF'ls,	Klamath.
Georgia Belle White,	H. S.,	Corvallis,	Benton.
Oscar Philip Wigle,	Mech.,	Brownsville,	Linn.
Burt Wilkes,	Min.,	Hillsboro,	Washington.
Elinor Wilkes,	H. S.,	Hillsboro,	Washington.
John Corwin Williams,	Min.,	Troutdale,	Multnomah.
Pearl Irene Williams,	Phar.,	JordanVal'y,	Malheur.
Clyde Everett Williamson,	L. C.,	Albany,	Linn.
Reuben Ernest Wills,	L. C.,	Heppner,	Morrow.
Frank Jackson Wilson,	Phar.,	Canyonville,	Douglas.
Martha Delilah Winniford,	H. S.,	Wren,	Benton.
Ernest Rowland Woods,	L. C.,	Albany,	Benton.
Ralph Worstell,	Mech.,	La Grande,	Union.
Richard Jeremiah Wright,	Phar.,	Athena,	Umatilla.
Maude Agatha Wysong,	H. S.,	Amity,	Yamhill.
Harvey August Yeager,	Mech.,	Heppner,	Morrow.
Carl Yount,	Agri.,	Douglas,	Morrow.
Charles Edwin Zeiger,	Agri.,	Montclair,	New Jersey.
Henry Roderick Zimmerman,	Mech.,	The Dalles,	Wasco.

SUB-FRESHMEN.

Name	Postoffice	County
Alfred Abraham,	Albany,	Linn.
Gustav Abraham,	Albany,	Linn.
Elvera Trinette Allen,	Hood River,	Wasco.
James Marvin Anderson,	Salem,	Marion.
Sylvester Armitage,	Springfield,	Lane.
Claud Carthel Baynard,	Aumsville,	Marion.
Harold Wilson Bell,	The Dalles,	Wasco.
Henry Ludwig Bergman,	Gardiner,	Douglas.
Edward Lewis Berland,	Enterprise,	Wallowa.
John Lester Bilyeu,	Scio,	Linn.
Clarence Edgar Boner,	Joseph,	Wallowa.
Hugh Edwin Brady,	Portland,	Multnomah.
Clara Viola Brant,	Monmouth,	Polk.

Kinnear Owsley Buick,	Silver Lake,	Lake.
Leslie Pearl Bush,	Hoskins,	Benton.
Jane Russell Caldwell,	Corvallis,	Benton.
Bessie Kate Caldwell,	Corvallis,	Benton.
Lee Calvin,	Enterprise,	Wallowa.
Ralph Orin Caves,	Hoskins,	Benton.
Harry Roemine Clark,	Drewsey,	Harney,
Leonard Fred Darby,	Corvallis,	Benton.
Melville Evan Davis,	Vale,	Malheur.
Mary Lillian Earnest,	Vernon,	Lincoln.
Phil Emit Edwards,	Dell,	Malheur.
Harry Evans,	Bourne,	Baker.
Georgia Virginia Ewing,	Oswego,	Clackamas.
Nellie Martha Farrell,	Scappoose,	Columbia.
Birdie Emeline Fletcher,	Ontario,	Malheur.
Frank Farley Fletcher,	Ellsworth,	Washington.
Oliver Bradford Fowles,	Mountain Dale,	Washington.
Walter Carol Galloway,	Hillsboro,	Washington.
Howard Gill,	Oregon City,	Clackamas.
Lloyd Roscoe Goodrich,	Dayton,	Yamhill.
Stuart Grenfell,	McMinnville,	Yamhill.
Martin James Gribble,	Mt. Hood,	Wasco.
Harry Roy Hamilton,	Portland,	Multnomah.
Alex Hanly,	Burns,	Harney.
Ethel Elnora Harpole,	Junction City,	Lane.
Philo Benjamin Hawley,	Wildwood,	Lane.
Clyde Crawford Hayden,	Alsea,	Benton.
Alice Bernice Henness,	Gates,	Linn.
Cyrus Wellington Hewitt,	Ione,	Morrow.
Mervin Herbert Horton,	Burns,	Harney.
Charley Harry Howard,	Bridal Veil,	Multnomah.
Alva Chester Hughes,	Oregon City,	Clackamas.
Bertha Ella Hughes,	Oregon City,	Clackamas.
Loyd Clarence Hunt,	Detroit,	Marion.
Daniel Haden Jackson,	Bandon,	Coos.
William Homer Kitchen,	Sumpter,	Baker.
Benjamin Harrison Knapper,	Joseph,	Wallowa.

Gustave Wilhelm Krause,	Cornelius,	Washington.
Nellie Kurth,	Portland,	Multnomah.
Bennie William Lee,	Elgin,	Union.
Roland Vivian Leep,	Myrtle Point,	Coos.
John Donald Lines,	Albany,	Linn.
Samuel Elmer Masters,	Haines,	Baker.
Roy Calvert McCully,	Joseph,	Wallowa.
William Forrest McGinnis,	Moro,	Sherman.
Frank Lester Michaelbook,	McMinnville,	Yamhill.
Clifford Hartley Moore,	Portland,	Multnomah.
Thomas Morris,	Rainier,	Columbia.
Lillian May Nelson,	Dixie,	Washington.
Evaline Newkirk,	Oregon City,	Clackamas.
Arthur O'Conner,	Montague,	California.
Howard O'Connor,	Montague,	California.
James Emmett O'Sullivan,	Haines,	Baker.
Helen Loretta Pelland,	St. Paul,	Marion.
Frank Richard Pendergrass,	Amity,	Yamhill.
Frederick Eugene Pernot,	Corvallis,	Benton.
Frank Edgar Porter,	Pendleton,	Umatilla.
Philip Porter,	Hammond,	Clatsop.
Ralph Earl Porter,	Pendleton,	Umatilla.
Clifton Aaron Purdy,	Gaston,	Washington.
Thurlow Reeves,	Joseph,	Wallowa.
Bert Reynolds,	Carson,	Washington.
George Rieben,	Greenville,	Washington.
Ira Lewis Rowe,	Corvallis,	Benton.
Johnnie Andrew Schassen,	Kent,	Sherman.
Frank Schrack,	Tangent,	Linn.
Alexander Schwabauer,	Montavilla,	Multnomah.
Roy Leon Shaw,	Olex,	Gilliam.
Robie Floyd Shull,	Myrtle Point,	Coos.
John Add Silvertooth,	Antelope,	Wasco.
Frank Leroy Smith,	Corvallis,	Benton.
Roy Herbert Sprague,	Oregon City,	Clackamas.
Farris Edith Stocker,	Antelope,	Wasco.
James Everett Stubblefield,	Enterprise,	Wallowa.

Daniel Sutherland,	Shedds,	Linn.
Maurice Earl Taber,	Sheridan,	Yamhill.
Nash Orlin Taylor,	Hollister,	California.
Aura Anemarillas Thomson,	Echo,	Umatilla.
James Jay Thompson,	Macleay,	Marion.
Benjamin Blaine Totten,	Corvallis,	Benton.
Laura Elsie Van Meter,	Hoskins,	Benton.
George Vest,	Joseph,	Wallowa.
Howard Wagner,	Enterprise,	Wallowa.
William Oliver Wagstaff,	Fort Klamath,	Klamath.
Nina May Wall,	Glendale,	Douglas.
William Villows Weaver,	Enterprise,	Wallowa.
Leila Lucile West,	Scappoose,	Columbia.
Orin Roy West,	Mt. Tabor,	Multnomah.
Erwin Arthur Wicklund,	Vale,	Malheur.
Leroy Owen Wicklund,	Vale,	Malheur.
Elmer Benton Williamson,	Albany,	Linn.
Gilbert Fayette Winslow,	Oysterville,	Washington.
Charles Winkelried Wortman,	Enterprise,	Wallowa.
Robert Cecil Wygant,	Toledo,	Lincoln.
Cora Myrtle Yocum,	Estacada,	Clackamas.
Norris William Young,	Sherwood,	Washington.
Peter Crist Zimmerman,	Portland,	Multnomah.

SPECIALS.

Name	Postoffice	County
Florence Leona Allen,	Hood River,	Wasco.
Delle May Baldwin,	Corvallis,	Benton.
Nishi Kauta Banerji,	Rodrokor,	Bengol.
Josephine Belt,	Corvallis,	Benton.
Zena Hester Chapman,	Grants Pass,	Josephine.
Bessie Guss Danneman,	Clem,	Gilliam.
George J. Dodson,	Snowden,	Washington.
Margaret Isabel French,	Corvallis,	Benton.
Etta Anna Hall,	Milwaukie,	Clackamas.
Gretta Harrington,	Omaha,	Nebraska.
Lana Claire Holgate,	Baker City,	Baker.

Maud Montgomery,	Falls City,	Polk.
Fred Porter,	Corvallis,	Benton.
Laura Pratt,	Mound City,	Missouri.
Pala Singh,	Dharmkote,	India.
Ina Adele Smith,	Springfield,	Lane.
Mildred Maude Smith,	Springfield,	Lane.
Ida Mary Williams,	Albany,	Linn.

MUSIC AND OTHER STUDIES.

Name	Postoffice	County
Edna Grace Allen,	Corvallis,	Benton.
George Henry Baker,	The Dalles,	Wasco.
Laura Dameron Bolton,	Enterprise,	Wallowa.
Julia Gladys Borst,	Centralia,	Washington.
Emma Crabill,	Baker City,	Baker.
Jessie May Davidson,	Ione,	Morrow.
Susie Louise Fiser,	Ontario,	Malheur.
Jessie Ruth Hills,	Jasper,	Lane.
Agnes May Langer,	Sherwood,	Washington.
Winnie Logan,	Kings Valley,	Benton.
May Margaret Martin,	McMinnville,	Yamhill.
Gertrude Alice McBee,	Corvallis,	Benton.
Gladys Gwendolin Moore,	Prineville,	Crook.
Frankie Eugenie Payne,	Albany,	Linn.
Vena Rickard,	Corvallis,	Benton.
George Snipes,	The Dalles,	Wasco.
Irene Brown Sproat,	Hood River,	Wasco.
Walter Tyler,	Lents,	Clackamas.
Zetta White,	Mt. Angel,	Marion.

SPECIAL DAIRYING.

Name	Postoffice	County
Henry Belloni,	Coquille,	Coos.
Walter Bennett,	Glen's Falls,	New York.
Swen Bradeson,	Toledo,	Lincoln.
Louis Brandes,	Portland,	Multnomah.
Martin Clausen,	Coquille,	Coos.
William Deeds,	Mist,	Columbia.

Mrs. Mary Earnest,	Corvallis,	Benton.
Vernon Gilkey,	Kittitas,	Washington.
Egbert Goodspeed,	Tillamook,	Tillamook.
Chester Johns,	Galesville,	Douglas.
Hjalmar Kandoll,	Deep River,	Washington.
Carl Mattson,	Sumner,	Coos.
Ross Miller,	Silverton,	Marion.
Charles Myers,	Coquille,	Coos.
Arthur Persinger,	Monroe,	Benton.
Lameck Peterson,	Mist,	Columbia.
Mark Rickard,	Alsea,	Benton.
Michael Walsh,	Milwaukie,	Clackamas.

SPECIAL AGRICULTURE.

Name	Postoffice	County
Louis Brooks,	Corvallis,	Benton.
Wes Elliot,	Dallas,	Polk.
Henry Foster,	Corvallis,	Benton.
Millard French,	Heppner,	Morrow.
Homer Harris,	Lebanon,	Linn.
Lewis Moulton,	McMinnville,	Yamhill.
Otto Naef,	Milwaukie,	Clackamas.
Henry Reed,	Hood River,	Wasco.
John Sprague,	Oregon City,	Clackamas.
Clyde Welborn,	Turner,	Marion.

PIANO.

Name	Postoffice	County
George Baker,	The Dalles,	Wasco.
Laura Bolton,	Enterprise,	Wallowa.
Gladys Borst,	Centralia,	Washington.
James Chambers,	Kings Valley,	Benton.
Juliet Cooper,	Palo Alto,	California.
Emma Crabill,	Baker City,	Baker.
Jessie Davidson,	Ione,	Morrow.
Vera Sarah Farrell,	Scappoose,	Columbia.
Minnie Diven,	Vale,	Malheur.

Susie Fiser,	Ontario,	Malheur.
Blanch Hammell,	Corvallis,	Benton.
Cora Hawley,	Monroe,	Benton.
Jessie Hawley,	Grass Valley,	Sherman.
Alice Hill,	Hood River,	Wasco.
Jessie Hills,	Jasper,	Lane.
Pearl Horner,	Corvallis,	Benton.
Vera Horner,	Corvallis,	Benton.
Mary Jones,	Suver,	Polk.
Ora Jones,	Corvallis,	Benton.
Mabell Keady,	Corvallis,	Benton.
Nellie Kurth,	Portland,	Multnomah.
Agnes May Langer,	Sherwood,	Washington.
Winnie Logan,	Kings Valley,	Benton.
Faith Lister,	Nashville,	Benton.
Adah McDonald,	Grants Pass,	Josephine.
Gladys Moore,	Prineville,	Crook.
Kate Moore,	Echo,	Umatilla.
Bertha Neui,	Clem,	Gilliam.
Frankie Payne,	Albany,	Linn.
Bessie Pogue,	Ontario,	Malheur.
Horace Propst,	Albany,	Linn.
Lydia Rainey,	Portland,	Multnomah.
Audie Shelton,	Scio,	Linn.
John Silvertooth,	Antelope,	Wasco.
Lester Smith,	Corvallis,	Benton.
Dorothea Simpson,	Corvallis,	Benton.
Lulu Spangler,	Corvallis,	Benton.
Irene Sproat,	Hood River,	Wasco.
Aura Thomson,	Echo,	Umatilla.
Georgia White,	Klamath Falls,	Klamath.
Zetta White,	Mount Angel,	Marion.
Bertha Witman,	Lebanon,	Linn.
Lawrence Taylor,	Fossil,	Wheeler.

VOCAL MUSIC DEPARTMENT.

Name	Postoffice	County
Edna Grace Allen,	Corvallis,	Benton.
Gustave Abraham,	Albany,	Linn.
Arthur Rex Barnett,	Athena,	Umatilla.
Cecile Boswell,	Vale,	Malheur.
Sherman Brown,	Fort Klamath,	Klamath.
Louis Bennett,	Medford,	Jackson.
Miles Belden,	Cove,	Union.
Nellie Beers,	Jordan Valley,	Malheur.
Janette Blackledge,	Corvallis,	Benton.
Thad Blackledge,	Corvallis,	Benton.
Grace Cramer,	Holbrook, Nebraska.	
Linnie Currin,	Ione,	Morrow.
Edward Calloway,	Ontario,	Malheur.
Cecil Clark,	Logan,	Clackamas.
Zena Chapman,	Ione,	Morrow.
Harvel Currin,	Ione,	Morrow.
Cleve Currin,	Ione,	Morrow.
Ralph Caves,	Hoskins,	Benton.
Earnest Carey,	Philomath,	Benton.
John Clark,	Portland,	Multnomah.
Marian Chappell,	Corvallis,	Benton.
Ruth Corbett,	Corvallis,	Benton.
Grace Corbett,	Corvallis,	Benton.
Clinton Dicken,	Hood River,	Wasco.
Gustave Eilers,	Aurora,	Marion.
Alma Edwards,	Vale,	Malheur.
Pearl Edwards,	Vale,	Malheur.
Alice Edwards,	Belfountain,	Benton.
Verna Farrell,	Scappoose,	Columbia.
Margaret Fowells,	Fayette, Iowa.	
Lloyd Goodrich,	Dayton,	Yamhill.
Azora Gregg,	Amity,	Yamhill.
Hubert Green,	Corvallis,	Benton.
Isabel Green,	Corvallis,	Benton.
Blanche Hammell,	Corvallis,	Benton.

Mary Alicia Hill,	Hood River,	Wasco.
Amy Holmes,	Grants Pass,	Josephine.
Merle Hollister,	Hood River,	Wasco.
Deane Hollister,	Hood River,	Wasco.
Grace Huff,	Corvallis,	Benton.
Orie Anes Holmes,	Grants Pass,	Josephine.
Amber Humiston,	Fayette, Iowa.	
Stella Humiston,	Fayette, Iowa.	
Edward Hughes,	Oregon City,	Clackamas.
Frank Hall,	Milwaukie,	Clackamas.
Etta Hall,	Milwaukie,	Clackamas.
Ethel Higdon,	Cannon City, Colorado.	
Donald Arthur Hill,	Hood River,	Wasco.
Sophia Hartley,	Cottage Grove,	Lane.
Calvin Asa Ingle,	Milton,	Umatilla.
Floy Johnson,	John Day,	Grant.
Lillian Johnson,	Corvallis,	Benton.
Inez Johnson,	Corvallis,	Benton.
Lawrence Johnson,	Vale,	Malheur.
James Garfield Kelley,	Lents,	Multnomah.
Olivia Kennedy,	Hillsboro,	Washington.
Jean Marian Kent,	Corvallis,	Benton.
Ethel Linville,	Corvallis,	Benton.
Donald Lines,	Albany,	Linn.
Donald Morgan,	Portland,	Multnomah.
Gertrude McBee,	Corvallis,	Benton.
Clifford Moore,	Portland,	Multnomah.
May Margaret Martin,	McMinnville,	Yamhill.
Maude Mattley,	Lewisville,	Polk.
Silvis Nichols,	Belfountain,	Benton.
Victor Niederer,	Summerville,	Union.
May Oviatt,	Buell,	Polk.
Helen Pelland,	St. Paul,	Marion.
Marie Louise Pelland,	St. Paul,	Marion.
Asa Post,	Dayton,	Yamhill.
Stella Parsons,	Albany,	Linn.
Annie Lenore Peterson,	Portland,	Multnomah.

Frankie Eugene Payne,	Albany,	Linn.
Marjorie Ellen Richards,	Farmington,	N. H.
Elmer Rawson,	Vancouver,	Washington.
Vena Rickard,	Inavale,	Benton.
Mary Simpson,	Corvallis,	Benton.
Evelyn Smith,	Corvallis,	Benton.
Mary Rosa Scoggin,	Sherman,	Wasco.
Carl Smith,	Carson,	Washington.
Mamie Sparkman,	Woodland,	California.
Aura Thomson,	Echo,	Umatilla.
Edward Thayer,	Rainier,	Columbia.
Walter Tyler,	Lents,	Multnomah.
Lena Belle Tarter,	Airlie,	Polk.
Agnes Elizabeth von der Helen,	Wellon,	Jackson.
Erwin Fred Wann,	Salem,	Marion.
Rupert Wall,	Early,	Sherman.
Rose Wilson,	Corvallis,	Benton.
Mary Wilkins,	Fort Dodge,	Iowa.
Mildred Watts,	Washington Depot,	Conn.
Winona Woodward,	Corvallis.	Benton.
Pearl Williams,	Jordan Valley,	Malheur.
Guy Leonard Weaver,	Salem,	Marion.
Ralph Worstell,	La Grande,	Union.
Harvey Yeager,	Heppner,	Morrow.

Students Classified by Courses of Study.

MECHANICS.		
Seniors	5	
Juniors	3	
Sophomores	39	
Freshmen	91	
ELECTRICAL ENGINEERING.		
Seniors	9	
Juniors	12—	159
HOUSEHOLD SCIENCE.		
Seniors	12	
Juniors	9	
Sophomores	9	
Freshmen	35—	65
AGRICULTURE.		
Seniors	7	
Juniors	5	
Sophomores	14	
Freshmen	40—	66
PHARMACY.		
Seniors	5	
Juniors	4	
Sophomores	14	
Freshmen	47—	70
LITERARY COMMERCE.		
Seniors	5	
Juniors	7	
Sophomores	17	
Freshmen	62—	82
MINING.		
Seniors	6	
Juniors	6	
Sophomores	11	
Freshmen	18—	41
GRADUATES		18
SPECIAL STUDENTS		37
MUSIC		139
SUB-FRESHMEN		110
DAIRYING & AGRICULTURE		28
GRAND TOTAL		824
COUNTED TWICE.		
Music	89	
NUMBER OF STUDENTS		735

RECAPITULATION.

	Men	Women	Dept. Total	Class Total
GRADUATES	10	8		18
SENIORS—				
Mining	6		6	
Mechanical	5		5	
Electrical	9		9	
Literary Commerce	2	3	5	
Household Science		12	12	
Agricultural	7		7	
Pharmacy	5		5	
Total seniors				49
JUNIORS—				
Mechanical	3		3	
Electrical	12		12	
Mining	6		6	
Literary Commerce	2	5	7	
Household Science		9	9	
Agricultural	5		5	
Pharmacy	4		4	
Total juniors				46
SOPHOMORES—				
Mechanical	39		39	
Mining	11		11	
Literary Commerce	12	5	17	
Household Science		9	9	
Agricultural	14		14	
Pharmacy	12	2	14	
Total sophomores				104
FRESHMEN—				
Mechanical	91		91	
Agricultural	40		40	
Household Science		35	35	
Literary Commerce	37	25	62	
Pharmacy	44	3	47	
Mining	18		18	
Total freshmen				293
SUB-FRESHMEN	88	22		110
SPECIAL	7	30		37
SPECIAL AGRICULTURE AND DAIRYING	27	1		28
MUSIC				
Vocal	39	57		96
Piano	6	37		43
STUDENTS COUNTED TWICE—				824
Music—Vocal	34	27	61	
Piano	4	24	28	
Total				89
Number of students in college	523	212		735

Students Classified by Counties, States and Foreign Countries.

Baker	19
Benton	119
Clackamas	41
Clatsop	7
Columbia	12
Coos	12
Crook	4
Curry	0
Douglas	12
Grant	5
Gilliam	7
Harney	9
Jackson	9
Josephine	6
Klamath	8
Lake	2
Lane	13
Lincoln	6
Linn	53
Malheur	28
Marion	30
Morrow	18
Multnomah	57
Polk	29
Sherman	11
Tillamook	4
Umatilla	17
Union	20
Wallowa	23
Wheeler	3
Wasco	33
Washington	25
Yamhill	23
Number of counties in Oregon	33
Total number of counties represented	32
Whole number of students from Oregon	665
Arkansas	2
California	6
Colorado	3
Connecticut	1
England	1
India	5
Idaho	1
Illinois	2
Iowa	8
Missouri	1
Nebraska	12
Nevada	2
New Hampshire	1
New Jersey	1
New York	1
Washington	23
Total	735

Comparative Statement of Enrollment.

Year.	Music, Special.	Preparatory.	Freshmen.	Sophomores.	Juniors	Seniors	Graduate Students.	Special.	Dairying.	Total.
1888–1889..	....	36	33	14	14	0	0	0	....	97
1889–1890..	....	67	55	17	6	0	6	0	....	151
1890–1891..	....	76	83	24	15	0	3	0	....	201
1891–1892..	....	86	63	28	19	9	3	0	....	208
1892–1893..	....	98	123	31	18	7	5	0	....	282
1893–1894..	....	36	103	71	21	5	4	0	....	240
1894–1895..	....	47	85	64	52	13	0	0	....	261
1895–1896..	....	80	175	63	54	9	14	2	....	397
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1898–1899..	....	men.	164	79	30	36	15	14	....	338
1899–1900..	....	42	145	74	40	36	20	48	....	405
1900–1901..	....	44	177	72	42	37	9	55	....	436
1901–1902..	14	38	247	83	30	38	10	28	....	488
1902–1903..	21	54	232	97.	40	36	12	32	17	541
1903–1904..	48	85	191	80	46	39	3	28	10	530
1904–1905..	29	75	304	97	36	49	11	33	46	680
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  - Cattle Breeding, Warfield.
  - Feeding of Animals, Jardan.
  - Feeds and Feeding, Henry.
  - Horses, Cattle, Sheep and Swine, Curtis.
  - Manual of Cattle Feeding, Armsby.
  - Physics of Agriculture, King.
  - Soil, King.
  - Stock Feeding, Stewart.
  - Study of Breeds, Shaw.
  - Veterinary Studies, Reynolds.
- Bacteriology—
  - Essentials of Bacteriology; Ball.
- Botany—
  - Histology—Coulter, Plant Structures.
    - Strassburger, Practical Botany.
  - Morphology and Exology — Leavitt, Outlines.
    - Coulter, Plant Relations.
    - Bergen, Foundations.
  - Physiology—Sorauer, McDougal, Green
  - Physiology, Laboratory—Ganong, Mcdougal.
- Chemistry—
  - Agricultural Chemistry, Johnson.
  - Crooke's Select Methods.
  - Engineering Chemistry, Blount and Bloxan.
  - Food Inspection and Analysis, Leach.
  - General Chemistry, Bradbury, Newell, Young.
  - Microscopy of Vegetable Foods, Winton
  - Qualitative Analysis, Johnson and Prescott, Dennis and Whittlesey.
  - Quantitative Analysis, Talbot, Smith and Cheever.
  - Organic Chemistry, Remsen.
  - Stillman Engineering Chemistry.
  - Sutton's Volumetric Analysis.
  - Technology of Paint and Varnish, Savin
  - Thorpe's Dictionary of Applied Chemistry.
  - Wiley's Principles of Applied Chemistry
- Civil Engineering and Mathematics—
  - Advanced Algebra, Hawks.
  - Algebra—Essentials of, Wells.
  - Analytic Geometry—Plane and Solid, Ashton.
  - Arithmetic—Higher, Wentworth.
  - Railroads—Searles, Webb.
  - Roofs and Bridges—Merriman and Jacoby.
  - Sanitary Engineering—Folwell.
  - Surveying—Johnson.
  - The New Business Arithmetic—Powers and Lyon.
  - Trigonometry—Plane and Spherical, Ashton and Marsh.
  - Water Supply Engineering, Folwell.
- Dairying—
  - Dairy Chemistry, Snyder.
  - Milk and Its Products, Wing.
- Elocution—
  - Evolution of Expression, Emerson.
  - Steps to Oratory, Townsend.
- English and Literature—
  - American Literature, Abernethy.
  - Composition, Lockwood and Emerson
  - Elementary English Composition, Huber, Gray, Buehler.
  - Kimball's Business Speller.
  - Baldwin's College Manual of Rhetoric
  - English Grammar, Whitney.
  - Introduction to English Literature, Pancoast.
  - Practical Elementary Rhetoric, Genung.
- Entomology—
  - Animals, Jordan, Heath & Kellogg.
  - Bulletins and Reports, U. S. Entomologist.
  - Thornton's Human Physiology.
  - Insect Life, Comstock.
- German—
  - Collar-Eysenbach's German Grammar.
  - Mueller and Wenckebach's Gluck Auf.
  - Hewett's German Reader.
  - Bronson's Colloquial German.
  - Jagemann's German Syntax.
  - Selections from Modern prose works, Schiller's and Lessing's Dramas.
  - Brandt and Day Scientific German Reader.
- History—
  - General History, Myers (Two Volume Edition).
  - U. S. History—Essentials in American History, Hart.

- Astronomy—Elementary, Young.
- Calculus—Differential and Integral, Nichols.
- Contracts and Specifications, Johnson.
- Geometry—Plane and Solid, (Revised Edition), Wentworth.
- Highway Construction, Byrne.
- Masonry Construction and Foundations, Baker, Patton.
- Mining Eegineering—A Manual of Mining, Ihlseng.
- Allen & Greenough's Latin Grammar.
- Caesar—Books I and II, Allen and Greenough.
- Cicero's Orations, Allen and Greenough.
- First Year Latin, Collar and Daniel.

Literary Commerce—
- Modern Book-keeping, Montgomery.
- Commercial Law, Richardson.

Mechanical and Electrical Engineering—
- Alternating Currents and Alternating Current Machinery, Jackson & Jackson.
- A Practical Course in Mechanical Drawing, Fox & Thomas.
- Descriptive Geometry, C. E. Ferris.
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- High School Physics, Carhart & Chute.
- Machine Design, Part I, Jones.
- Physical Laboratory Manual, Chute.
- Technical Mechanics, Edward R. Maurer.
- The Strength of Materials, Merriman.

Mental and Political Science—
- Essentials of Psychology, Buell.
- Johnston's History of American Politics
- Principles of Economics, Fetter.

Military—
- Army Regulations, U. S. A.
- Constitutional Law, Cooley.
- Conventional Signs and Symbols, General Staff U. S. A.
- Drill Regulations of Hospital Corps, U. S. A.
- First Aid to the Injured, Johnson & Johnson.

Horticulture—
- Principles of Fruit Growing, Bailey.
- Plant Breeding, Bailey.
- Principles of Plant Culture, Goff.
- The Survival of the Unlike, Bailey.

Household Science—
- Ethics of Marriage, Pomeroy;
- From Cellar to Attic, Elizabeth Holt.
- Household Science Helen Campbell.

Latin—
- Aeneid, Greenough and Kittredge.

Federal Aid in Domestic Disturbances, W. D. Publication.
- Guard Manual, U. S. A.
- Infantry Drill Regulations, U. S. A.
- International Law, Davis.
- Light Artillery Drill Regulations, U. S. A.
- Military Science, Wagner.
- Manual of Field Engineering, Beach.
- Map Making and Map Reading, Beach.
- Military Occupation, Magoon.
- Military Law, Winthrop.
- Manual of Physical Drill, Butts.
- Manual of Signal Corps, Giddings.
- Organization and Tactics, Wagner.
- Small Arm Firing Regulations, U.S.A.
- Security and Information, Wagner.
- Telephones and Telegraphs, U. S. A.

Mining—
- Assaying, Furman.
- Blowpipe Analysis, Moses & Parsons.
- Geology Scott.
- Physical Mineralogy, Eakle.

Pharmacy and Materia Medica—
- King's Dispensatory.
- Materia Medica, Culbreth.
- Medical Chemistry, Bartley.
- National Formulary.
- Organic Analysis, Prescott.
- Practice of Pharmacy, Remington.
- Quantitative Analysis, Sturmer and Vanderkleed.
- The Art of Compounding, Scoville.
- Treatise on Pharmacy, Caspari.
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- U. S. Dispensatory, Pharmacopœia, Homeopathy.

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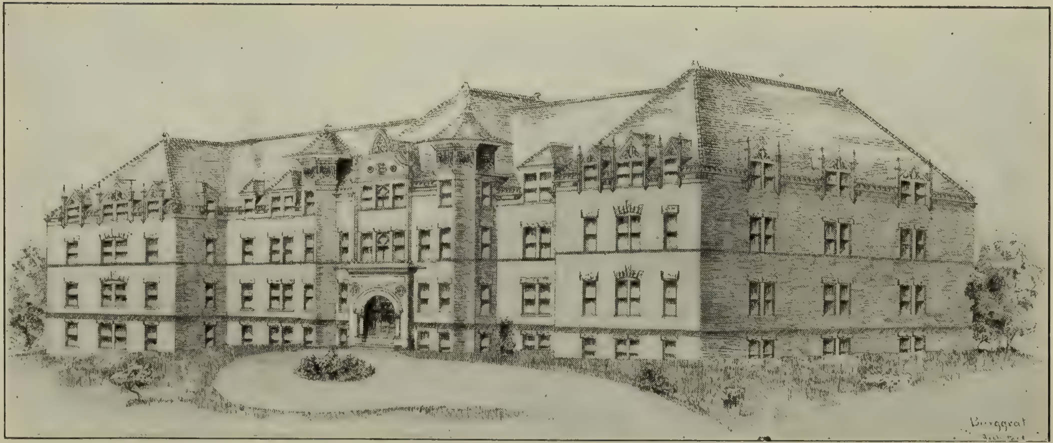
Agricultural College

1906-1907



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1907

CALENDAR

1907

JULY.

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1908

JANUARY.

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MARCH.

S.	M.	T.	W.	T.	F.	S.
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22	23	24	25	26	27	28
29	30	31	...	...	...	...

APRIL.

S.	M.	T.	W.	T.	F.	S.
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MAY.

S.	M.	T.	W.	T.	F.	S.
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JUNE.

S.	M.	T.	W.	T.	F.	S.
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CALENDAR.

FIRST TERM.

Annual Meeting Board of Regents, Wednesday, July 17, 1907.

Entrance Examinations for Freshmen, Friday and Saturday, September 27, 28, 1907.

Registration, Monday, September 30, 1907.

Recitations begin Tuesday, October 1, 1907.

Recital School of Music, Friday, December 6, 1907.

Final Examinations, Wednesday, Thursday and Friday, December 18, 19, 20, 1907.

SECOND TERM.

Registration, Friday and Saturday, January 3, 4, 1908.

Recitations begin Monday, January 6, 1908.

Meeting Board of Regents, Wednesday, January 8, 1908,

Recital School of Music, Friday, March 13, 1908.

Final Examinations, Tuesday, Wednesday and Thursday, March 24, 25, 26, 1908.

THIRD TERM.

Registration, Monday, March 30, 1908.

Recitations begin Tuesday, March 31, 1908.

Baccalaureate Sermon, Sunday, June 14, 1908.

Final Examinations, Friday, Monday and Tuesday, June 12, 15, 16, 1908.

Recital School of Music, Friday, June 15, 1908.

Commencement Day, Wednesday, June 17, 1908.

BOARD OF REGENTS

OF THE

OREGON AGRICULTURAL COLLEGE

AND

EXPERIMENT STATION.

OFFICERS.

Hon. J. K. Weatherford, *President*	Albany.
Hon. E. E. Wilson, *Secretary*	Corvallis.
Hon. B. F. Irvine, *Treasurer*	Corvallis.

EX-OFFICIO MEMBERS.

Hon. George E. Chamberlain, *Governor of the State*	Salem.
Hon. F. W. Benson, *Secretary of State*	Salem.
Hon. J. H. Ackerman, *Supt. of Public Instruction*	Salem.
Hon. Austin Buxton, *Master of State Grange*	Forest Grove.

APPOINTED BY THE GOVERNOR.

		TERM EXPIRES.
Hon. J. T. Apperson	Parkplace,	1910.
Hon. W. P. Keady	Portland,	1910.
Hon. J. K. Weatherford	Albany,	1910.
Hon. John D. Olwell	Central Point,	1912.
Hon. William W. Cotton	Portland,	1912.
Hon. Walter M. Pierce	Pendleton,	1912.
Mrs. Clara H. Waldo	Macleay,	1915.
Hon. E. E. Wilson	Corvallis,	1915.
Hon. B. F. Irvine	Corvallis,	1915.

STANDING COMMITTEES

OF THE

BOARD OF REGENTS.

EXECUTIVE COMMITTEE.

J. K. Weatherford, *Chairman*, J. T. Apperson, E. E. Wilson, W. W. Cotton, Austin Buxton.

FINANCE COMMITTEE.

J. T. Apperson, *Chairman*, Austin Buxton, Clara B. Waldo.

COLLEGE COMMITTEE.

B. F. Irvine, *Chairman*, W. P. Keady, Walter M. Pierce.

STATION COMMITTEE.

Walter M. Pierce, J. D. Olwell, William W. Cotton.

INSTITUTE COMMITTEE.

J. H. Ackerman, Clara B. Waldo, W. P. Keady.

FACULTY AND INSTRUCTORS.

WILLIAM JASPER KERR, D. Sc.,
President.*

THOMAS MILTON GATCH, A. M., PH. D.,
Professor Political and Mental Science.

JAMES WITHYCOMBE, M. AGR.,
Professor of Agriculture.

FREDERICK BERCHTOLD, A. M.,
Professor of English and Literature.

MARGARET COMSTOCK SNELL, M. D.,
Professor of Household Science and Hygiene.

GRANT ADELBERT COVELL, M. E.,
Professor of Mechanics and Mechanical Engineering.

JOHN B. HORNER, A. M., LITT. D., Registrar,
Professor of History and Latin.

GORDON VERNON SKELTON, C. E.,
Professor of Mathematics, Civil and Mining Engineering.

ARTHUR BURTON CORDLEY, M. S.,
Professor of Zoölogy.

EDWARD RALPH LAKE, M. S.,
Professor of Botany and Forestry.

ABRAHAM LINCOLN KNISELY, M. S.,
Professor of Chemistry.

HELEN VIRGINIA CRAWFORD, B. S.,
Professor of Elocution.

GEORGE COOTE,
Professor of Floriculture and Gardening.

JOHN FULTON B. Agr., B. S.,
Professor of Mineralogy and Geology.

THOMAS HENRY CRAWFORD, A. M.,
Commerce.

CLAUDE ISAAC LEWIS, B. S.,
Professor of Horticulture.

IDA BURNETT CALLAHAN, B. S.,
Dean of Women and Assistant Professor of English.

FRED LEROY KENT, B. AGR.,
Associate Professor of Agriculture and Dairying.

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*Doctor Kerr, late President of the Agricultural College of Utah, has been unanimously elected to succeed Doctor Gatch, who will retire from the Presidency July 17, 1907.

CHARLES LESLIE JOHNSON, B. S.,
Assistant Professor of Mathematics.

EMILE FRANCIS PERNOT, M. S.,
Professor of Bacteriology.

CLARENCE MELVILLE McKELLIPS, PH. C.,
Assistant Professor in Pharmacy and Materia Medica.

FRANK EDWARDS, B. M. E., M. S.,
Commandant, and Instructor in Chemistry.

JOHN COLBURN BRIDWELL, B. S.,
Instructor in Biology.

MARK CLYDE PHILLIPS, B. M. E.,
Instructor in Mechanical Drawing and Ironwork.

FARLEY McLOUTH,
Director of the Art Department.

HELEN LUCILE HOLGATE, B. H. E.,
Stenography and Typewriting.

MARK DOW McCALLISTER, B. S.,
Instructor in Woodwork.

CHARLES EDWARD BRADLEY, M. S.,
Assistant in Chemistry.

* GERARD TAILLANDIER,
Director of Music, and Instructor in German.

NICHOLAS TARTAR,
Instructor in Mathematics

MARY ELIZABETH SUTHERLAND, B. S.,
Instructor in Dressmaking.

WILL ORIAN TRINE,
Physical Director.

HARRY BEARD, B. S.,
Assistant in English and Band Master.

LOREN BURTON BALDWIN, A. M.,
Instructor in English.

EARL VINCENT HAWLEY, B. S.,
Assistant in Mechanical and Electrical Engineering.

GRACE GATCH, A. B.,
Assistant in Latin and History.

JUANITA ROSENDORF, B. S.,
Assistant in Typewriting and Stenography.

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* Terms for private instruction in French can be had by applying to Professor Taillandier.

RICHARD JEFFREY NICHOLS, B. S.,
Librarian.

EDNA SHEEHY,
Instructor in Vocal Music.

WILLIAM McCAULLY PORTER,
Instructor in Blacksmithing.

FRANK McREYNOLDS,
Instructor on Stringed Instruments.

BERT GILBERT HARTSON,
Assistant in Physical Culture.

SPECIAL LECTURERS.

MRS. CLARA H. WALDO,
Short Course in Household Science.

L. B. ZIEMER,
Short Course in Dairying.

OTHER OFFICERS.

THOMAS HENRY CRAWFORD, A. M.,
Clerk and Purchasing Agent.

GEORGE BRELSFORD KEADY,
Printer.

HELEN LUCILE HOLGATE, B. H. E.,
Station Stenographer.

JUANITA ROSENDORF, B. S.,
College Stenographer and Clerk in Department of Registration.

ARTHUR WILLIAM KEADY,
Assistant Printer.

WALTER JAMES KENT,
Foreman of the Farm.

JOHN ANDERSON SPANGLER,
Engineer.

ELLSWORTH ERWIN,
Janitor.

ROBERT CLEMENT WILLS,
Carpenter.

WILLIAM WICKS, M. S.,
Assistant in Horticulture.

ARTHUR GEORGE BOUQUET, B. S.,
Assistant in Floriculture.

FACULTY COMMITTEES.

ACCREDITED SCHOOLS.—Pernot, Covell, T. H. Crawford, McLouth.

ADVANCED STANDING.—Knisely, Kent, Phillips, Bridwell.

ADVISORY COMMITTEE.—Covell, Snell, Horner, Withycombe.

ATHLETICS.—Johnson, Trine, Hartson, Fulton.

DISCIPLINE.—Skelton, Horner, Callahan.

EMPLOYMENT.—Coote, Withycombe, Knisely, Edwards.

ENTRANCE EXAMINATIONS.—Tartar, Baldwin, H. V. Crawford, Callahan.

GRADUATES.—Berchtold, Kent, McLouth.

LECTURES AND LITERARY ENTERTAINMENTS.—H. V. Crawford, Edwards, Horner, Bradley.

LEGISLATION.—Withycombe, Covell, Bridwell.

LIBRARY.—Callahan, Withycombe, Holgate, Horner, Gatch.

LITERARY SOCIETIES.—Snell, McKellips, Pernot.

MASTER'S DEGREE.—Lake, Skelton, Cordley.

MUSIC.—Taillandier, Sheehy, T. H. Crawford, Fulton, Holgate.

PUBLICATIONS.—Horner, Berchtold, Lake, Cordley.

SOCIAL ENTERTAINMENTS.—Cordley, H. V. Crawford, Kent, Bradley.

TERM SCHEDULES.—Fulton, Horner, Johnson, Beard, Phillips.

THE STATION STAFF.

WILLIAM JASPER KERR, D. Sc.,
President.

JAMES WITHYCOMBE, M. Agr.
Director and Agriculturist.

ARTHUR BURTON CORDLEY, M. S.
Entomologist. and Plant Pathologist.

EDWARD RALPH LAKE, M. S.
Botanist.

GEORGE COOTE
Florist and Gardener.

ABRAHAM LINCOLN KNISELY, M. S.
Chemist.

FRANK EDWARDS, B. M. E., M. S.
Assistant Chemist.

CHARLES EDWARD BRADLEY, M. S.
Assistant Chemist.

FRED LEROY KENT, B. Agr.
Assistant Agriculturist and Dairy Instructor.

EMILE FRANCIS PERNOT, M. S.
Bacteriologist.

CLAUDE ISAAC LEWIS, B. S.,
Horticulturist.

THOMAS HENRY CRAWFORD, A. M.
Clerk and Purchasing Agent.

HELEN LUCILE HOLGATE, B. H. E.
Stenographer.

FRED CLARK EWING, B. S.,
Assistant Entomologist.

Oregon Agricultural College.

HISTORY.

By an act of Congress, approved by President Lincoln, July 2, 1862, a grant of land was made to each state in the Union in the amount of thirty thousand acres, or its equivalent, for each Senator and Representative to which the state was entitled by the apportionment of the census of 1860.

The proceeds under this act were to constitute a perpetual fund the principal of which was to remain forever undiminished; but interest arising from said fund, in each state which should avail itself of the benefits of the act, was to be applied inviolably to the support and maintenance of a "College where the leading objects shall be, without excluding other scientific and classical studies, and including military tactics, to teach such branches of learning as are related to agriculture and the mechanic arts, in such a manner as the legislatures of the states may respectively prescribe, in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions of life."

Ninety thousand acres of land were apportioned to Oregon, and by an Act approved October 9, 1862, the Legislative Assembly of Oregon accepted the provisions of the congressional law.

In 1868 the state legislature appointed three commissioners to locate the land; and a report of the selections made, was submitted in 1870.

There were in 1868 no state colleges in Oregon, and the same legislature that provided for the selection of the land gave the use of the funds that should arise from the sale of such land to the Corvallis College, in Benton county, an institution of learning under the control of the M. E. Church, South.

None of the land of the land grant having as yet been sold, the legislature made a small annual appropriation to support the school until the fund to be derived from the grant should become adequate.

In 1885 the church voluntarily relinquished its claim on the funds of the Agricultural College, and the state assumed control vesting the full management of the college in a board of regents.

In the summer of 1887 the corner-stone of a brick structure, now known as the administration building, was laid by the Governor of Oregon amid imposing ceremonies. This building, erected by citizens of Benton county on the Agricultural College farm, was the nucleus around which eleven other buildings eventually clustered as necessity and growing interests demanded.

THE MORRILL ACT.

On August 30, 1890, "An Act" was passed by Congress "to apply a portion of the proceeds of the public lands to the more complete endowment and support of the colleges for the benefit of agriculture and the mechanic arts established under the provisions of an act of Congress approved July 2, 1862."

This act provided that in 1890, $15,000 should be paid to each of the land grant colleges and that the amount so

appropriated should be increased by the sum of $1,000 annually for ten years, and that thereafter the amount annually appropriated should continue to be $25,000.

It also is provided that this money shall be "applied only to instruction in agriculture, the mechanic arts, the English language and the various branches of mathematical, physical, natural and economic sciences with special reference to their application in the industries of life, and to the facilities for such instruction." And it further provided that "no portion of said moneys shall be applied, directly or indirectly, under any pretense whatever, to the purchase, erection, preservation, or repair of any building or buildings."

THE HATCH ACT.

In addition to the above, this college receives from the United States, under the "Hatch Bill" of 1887, the sum of $15,000 a year for conducting experiments in agriculture. With this sum it supports an agricultural experiment station in connection with the college. Although the "Hatch Fund" is used entirely for experiment work, it is exceedingly valuable to students in agriculture and horticulture.

THE ADAMS ACT.

What may be known as the "Adams Act" was passed by Congress in March last. It carries with it an appropriation to supplement the Hatch Act. It makes an initial appropriation of $5000 available next fiscal year and an annual increase of $2000 until in the aggregate it amounts to $15,000. This fund is to be under the control of the Department of Agriculture and will probably be placed under the immediate supervision of the office of Experiment

Stations. This will give the Experiment Station control of $30,000, instead of the $15,000 now at its command.

LOCATION.

The State Agricultural College is located at Corvallis, Oregon, near the head of navigation on the Willamette river and is accessible by railway from the east, west, north and south. The city, as its name indicates, is in the heart of the Willamette valley. To the east is the Cascade range with its snow-capped peaks, while to the west, and near at hand is the Coast range. Chintimini, the tallest in the range, is covered with snow for several months of the year, and, though fourteen miles away, adds beauty to the scene.

A COLLEGE TOWN WITHOUT A SALOON.

Corvallis is a city of two thousand inhabitants, many churches and *no saloons*. The city, which is situated on high ground, has never been visited by any dangerous epidemic disease. The State Board of Health and other authorities have made frequent mention of the healthfulness of Corvallis and vicinity; and have spoken of the location of the College as one of the chief causes of its rapid growth.

COLLEGE GROUNDS.

The College grounds cover an area of 224 acres. Of this acreage about three-fifths is devoted to croppage including the common farm and garden crops, native pasture, orchards, small fruits and vines. The remaining two-fifths is devoted to lawns, shrubberies, athletic grounds and flower-gardens. The main campus is tastefully designed for landscape effects and the ultimate purpose is to use native trees and shrubs for the body of the plantings, with a view to exhibiting the value of our native plants for ornamental and economic purposes.

BUILDINGS.

"The Administration Building was erected by the citizens of Benton County, and with 35½ acres of ground was donated to the State of Oregon, as an inducement to the people of the State to locate permanently the State Agricultural College at Corvallis. It is a three story brick building containing fourteen rooms suitably arranged and well adapted for school purposes. It is of the estimated value of $25,000.00.

The Agricultural Hall, which is a three-story Oregon gray granite and sandstone building 85x125 feet, is situated about 150 yards southeast of the Administration Building. It is intended for an assembly hall for the Agricultural and Horticultural classes, laboratories and class rooms and for all purposes connected with agriculture and chemistry, dairying and the Experiment Station. It cost about $42,000.00.

Mechanical Hall is located about 150 yards northeast of the Administration Building. It is constructed of Oregon gray granite and sandstone. It is two stories high, 90x100 feet. It is a fine substantial building, well arranged and admirably adapted for the purpose for which it is used. It is valued at $23,000.00 and contains machinery worth $12,000.00.

The Armory is situated south of the Administration Building some 200 yards. This is a large two story wooden structure 70x120 feet. It is used for public gatherings, for armory purposes, gymnasiums, etc. It is valued at $10,000.

Cauthorn Hall is a three-story wooden structure intended for a home for young men attending the College and will accommodate 100 persons. It is valued at $15,000.00.

Alpha Hall is a two-story frame building, designed as a home for young ladies attending College and will accommodate 40 persons. It is valued at $4,000.00.

Horticultural Building stands north of the Administration Building about 200 yards. Its rooms are used as class rooms and these are connected with laboratories and green houses. The building, including laboratories, is valued at $2,500.00.

The Mining Laboratory, which is situated just south of the Administration Building, is a frame structure of the value of $4,000.00.

West of the Administration Building and about 200 yards distant, is located the blacksmith shop, a one story brick structure, large and roomy, valued at $6,000.00.

North of the Administration Building is the heating and power plant. The building is of brick and the plant consists of two boilers each of 75-horse power, and one of 50 horse power, of superior make and quality, also a 40 horse power engine and suitable dynamos to furnish light and power. From this plant all the buildings on the grounds are heated, by means of pipes conducting the heat underground to the various buildings. Electricity is generated by steam power and is conducted to all of the buildings belonging to the College. The building,machinery and heating apparatus are valued at $33,000.00.

The farm has also good barns, a number of silos, the usual farm machinery and is of the value of $2,500.00.

STUDENT LIFE.

CAUTHORN HALL.

Cauthorn Hall, commonly known as the Young Men's Hall, was named in honor of Senator Thomas Cauthorn, a benefactor of the Oregon Agricultural College. It was erected in 1891, for the use of young men who desire to live economically while attending school and at the same time enjoy the privileges and influences of dormitory life. The building, which is conveniently located and amply supplied with hot and cold water, bath rooms, steam heat and electric lights, is sufficiently large to accommodate one hundred persons. The dining room, kitchen, and reading room are pleasant and well furnished. Students' rooms are uniformly ten feet wide, and respectively fourteen, seventeen and twenty feet long.

Each student's room is furnished with a table, chairs, a chest with drawers; and each student is supplied with mattress, springs and a bedstead three feet wide and six feet long. The student is expected to furnish four sheets, two pillowcases, blankets, quilt, pillow, window-blind 3 x 6½ feet, towels, broom, dustpan, washbowl, pitcher, slop-pail, mirror, comb, brushes, tumblers, carpet, pictures and other ornaments that will make his room comfortable and homelike. He should bring a dictionary and such other books as are used for study, for reference, and for profitable entertainment.

The hall is managed by Mr. and Mrs. R. L. Whitehead with Instructor Mark Dow McCallister as resident master.

To obtain a room in Cauthorn Hall it is necessary for the applicant to furnish satisfactory evidence that he does not use tobacco nor profane language, and that his conduct is gentlemanly at all times.

The cost of living at Cauthorn Hall, including rent, heat, board, etc., is $3.00 per week payable monthly, in advance. No reduction will be made during the term, save for prolonged absence caused by sickness, when one-half will be deducted.

Each student on engaging a room is required to deposit $3.00 with the manager, which amount—loss and breakage deducted—will be returned when the room is vacated.

The hall is furnished with a reading room which is supplied by the club with choice current literature.

Relatives and visiting friends will be charged 15 cents per meal and 20 cents for lodging.

Cauthorn Hall will be closed during the winter holidays.

For further information send for special circular.

WOMEN'S HALL.

Women's Hall has been provided by the State of Oregon as a home for young women attending the Oregon Agricultural College. The building, which will be ready for occupancy at the beginning of the next school, will be supplied with the necessary furniture, steam heat, electric lights, bath rooms, hot and cold water, and other modern conveniences. A special circular free to all will be issued after the annual meeting of the Board which will furnish particulars such as cost of living at the Hall, what the student is expected to furnish, etc.

SOCIAL LIFE OF THE STUDENTS.

Literary contests are common events, the societies meeting in joint session, with prominent citizens as judges. The

Y. M. C. A. and Y. W. C. A. hold their regular sessions at the college every Sunday afternoon throughout the school year. These gatherings aid materially in developing the social and spiritual life of the members. At the beginning of the school year these associations conduct an employment bureau also a bureau of information at their headquarters, and furnish Y. M. C. A. hand-books gratis to all students. Each year a popular course of lectures free to all students is given, under the direction of the faculty, by distinguished speakers from various parts of the state. Vocal and instrumental music intersperse various features of the college work, so that a student in a career of four years may not leave the institution without the refining influences of this important art. Physical culture is encouraged in every way at the gymnasium and on the training grounds. Bowling, fencing, Indian-club swinging, dumb-bell exercises, foot ball, basket ball, base ball, golf and lawn tennis occupy the spare moments of the students in a happy commingling of all classes. These social affairs, although under the direction of a committee of the faculty, are managed by the students who thereby acquire a training in social life destined to be of great value to them.

Corvallis is pre-eminently a college town noted for social clubs, literary societies, and active churches which vie with each other in friendly interest and hospitality toward our young people. More and more as the institution progresses, patrons of the college move hither that they may be with their children and at the same time enjoy the refining influences and cultured society of a college community.

"* * * Alluding to a reference which had been made, Mr. Brown explained that he did not fully understand what was meant by the word 'crank' and said in effect, 'I want to congratulate the people of Benton County upon the lofty character of their citizenship. I want to congratulate Benton County and her citizens upon the high reputation she carries among her sister counties. I want to add that no county in Oregon, in proportion to its population, has so little litigation in the courts, as does this county of Benton with its alleged cranks. No county in Oregon in proportion to its population has so few criminal prosecutions; no county has so few persons brought to the bar of justice; no county in the second judicial district is at so little expense in the conduct of its court as is Benton and no county anywhere is so well fitted by the character of its people to be the home of a great educational institution, as is Benton County, with its so-called cranks.'"—*From an address by District Attorney George Brown before the Circuit Court of Benton.*

SOCIETIES.

The students maintain ten literary societies, five for young ladies and five for young gentlemen. These societies are of a semi-fraternal nature, offering to their members social as well as literary advantages. The exercises consist principally of essays, declamations, debates and music. Public and joint meetings are held by permission of the faculty. Many other features of college life, social and literary, are under their supervision.

The following is a list of the different literary societies now in existence:

For young ladies: Sorosis, Pierian, Feronian, Utopian, Clionian.

For young men: Amicitia, Jeffersonian, Philadelphian, Zetagathian, Athenaeum.

The membership of each of these societies is limited to forty. The other societies in the College are the Miners' Association, Engineer Association, Hindu-American Association, Agricultural, Prohibition, and Camera Clubs.

BAROMETER.

In March, 1896, the literary societies of the college began the publication of a monthly periodical, the "College Barometer." The enterprise met with marked success, and the paper, controlled entirely by students, now wields a strong influence in all college affairs. During the coming year every effort will be made to improve it and make it of interest not only to those directly connected with the school, but to all who are in touch with literary, scientific and industrial education. The editors will be pleased to receive news of alumni and other persons formerly connected with the college. Brief, pointed notes, accounts of scientific experiments and discoveries, and short, well-written and instructive literary articles are also solicited.

ATHLETICS.

The Oregon Agricultural College is a member of the Northwest Intercollegiate Athletic Association. This association is composed of the leading colleges and universities of the Northwest, organized for the better control of college athletics.

The students also maintain an athletic association known as the Athletic Union of the Agricultural College of Oregon. This organization supports foot-ball, base-ball, basket-ball and track teams and has general charge of all athletics under the supervision of the athletic committee of the faculty.

The College now owns a fine athletic field properly fenced, a neat and commodious grandstand, an excellent quarter-mile track. The enclosed area is thoroughly drained, graded and seeded, making this one of the best athletic fields in the Pacific Northwest.

The training and the physical condition of all athletes are supervised by the Director of Athletics, W. O. Trine, who has long been recognized as one of the most efficient trainers on the coast.

Owing to the growth of this department, B. G. Hartson was recently engaged as assistant instructor in physical culture.

GOVERNMENT.

The college does not undertake to prescribe in detail either its requirements or prohibitions. Students are met on a plane of mutual regard and helpfulness. Our appeal is to a proper sense of the proprieties of life and the necessity of organization on such a basis.

Established by a government that recognizes no distinction of religious belief, the Oregon Agricultural College seeks neither to promote any creed nor to exclude any; but it will always do everything in its power to promote the religious spirit and life.

Whenever the college life of any student is such that his influence, directly or indirectly, is injurious to the work of the institution, he will be relieved from further attendance at this college.

COURSE OF LECTURES.

In addition to the regular lectures given in the various departments by members of the faculty, a course of lectures by representative men, is delivered at convenient intervals during the year. These lectures bring young people in contact with leaders in the various departments of human endeavor; arouse investigation on current topics; stimulate students to emulate the achievements of specialists; give breadth of scholarship to the student and aid in developing the character of the institution. They rank among the most attractive features of college life and are free to all students.

CONDITIONS OF ADMISSION.

All applicants for matriculation in any department except music must be at least fifteen years of age.

To enter the freshman year the applicant must be able to pass a satisfactory examination in reading, spelling, geography (physical and descriptive), arithmetic (written and mental), United States history, English grammar, and algebra to quadratics.

ADMISSION FROM OTHER COLLEGES.

Students from other colleges must show a certificate of good standing, or honorable dismissal. Such applicants will receive credit for studies pursued in any college authorized to confer degrees, so far as the two courses are equivalent, upon presenting a certificate of standing from the proper officers.

ADMISSION FROM ACCREDITED SCHOOLS.

Graduates from the following accredited high schools and academies will be admitted to the freshman year without examination, provided they have completed algebra to quadratics:

Albany,
Astoria,
Ashland.
Baker City,
Bandon (Major Course),
Burns,
Carlton,
Coquille Collegiate Institute,
Corvallis,
Cottage Grove,
Cove,
Elgin,
Eugene,
Forest Grove,
Fossil,
Garland Academy,
Grant's Pass,
Gresham,
Heppner,
Hillsboro High School,
Hill's Military Academy,
Hood River,
Independence,
Jacksonville,
Klamath Falls,
Lafayette High School,
La Grande,
Lakeview,
Lebanon,
Marshfield,
McMinnville,
Medford,
Milton,
Moro,
North Yamhill,
Oregon City,
Ontario,
Parkplace,
Pendleton,
Portland,
Prineville,
Roseburg,
Salem,
Santiam Academy,
Silverton,
Summerville,
The Dalles,
The Allen Preparatory School, Portland,
Tillamook,
Union,
Vale,
Wasco,
Woodburn.

Those completing the two-year high school course prescribed by the Oregon State Board of Education will be permitted to register as Freshmen without examination. Those completing the four-year high school course may, upon presenting their diplomas, register as Sophomores. The heads of our various departments will give credit for equivalent work done in class or laboratory.

ADMISSION UPON CERTIFICATES AND STATEMENTS.

The holder of a certificate or statement signed by the county school board of examiners certifying that at a regular teachers' examination he received a satisfactory grade to entitle him to a teacher's certificate, may be admitted to all the freshman classes except algebra. He may remove such deficiency in algebra upon furnishing the President with a satisfactory statement from a teacher or school superintendent that the applicant is familiar with the subject of algebra to quadratics; or, upon arrival at the college, he may make good such deficiency by examination or by class recitation.

ADMISSION TO THE SUB-FRESHMAN CLASS.

The course of instruction offered under this head is intended for young people who live at considerable distance from an academy or high school, and are unable to attend such, but have finished the eighth grade in a good public school. No tuition is charged. The work is distributed in the three terms as follows:

SUB-FRESHMAN YEAR.

FIRST TERM.

English Grammar 5	English A
English Composition 5	English B
Arithmetic 5	Mathematics A
Physical Geography 5	Geography A
Reading 1, 2.	Elocution A
Military Drill 2½, 5 (young men)	Military A
Physical Culture 1½, 3 (young ladies)	Physical Culture A

SECOND TERM.

English Grammar 5	English C
English Composition 5	English D
Elementary Algebra 5	Mathematics B
U. S. History 5	History A
Elocution 1, 2	Elocution B
Military Drill 2½, 5	Military B
Physical Culture 1½, 3	Physical Culture B

THIRD TERM.

Civil Government	Civics A
English Grammar 5	English E
English Composition 5	English F
Algebra 5	Mathematics C
U. S. History 5	History B
Elocution 1, 2	Elocution C
Military Drill 2½, 5	Military C
Physical Culture 1½, 3	Physical Culture C

According to a regulation of the board of regents students shall not be admitted to this class who come from towns or cities of more than fifteen hundred inhabitants, or from such communities as are supporting good high schools.

ADMISSION OF SPECIAL STUDENTS.

None can be admitted as irregular or special students unless they belong to one of the following classes:

1. Those who desire to devote special attention to music and take at least two lessons a week in our department of music.
2. Those who on account of poor health certified by physicians cannot take a complement of studies.
3. Residents who are heads of families and have household duties to look after.
4. Residents who are engaged in a regular business or profession and have time for only one or two studies.
5. Such persons as may be permitted to take special studies by vote of the Faculty at a regular monthly meeting.

DIRECTIONS TO NEW STUDENTS.

Special students and also applicants for admission with credentials from universities, colleges, academies and high schools—graduates from accredited schools being excepted—shall report to the President.

Applicants who have previously matriculated in this College and those who hold teachers' certificates or have graduated from accredited schools and desire to enter the Academic department, also 8th grade graduates from country schools who desire to matriculate as Sub-Freshmen, should apply to the Registrar.

Unless otherwise ordered by the President, all other applicants for admission will apply to Professor Tartar, chairman of the committee on examinations, who will appoint the time and place for examination.

SCOPE OF THE INSTITUTION.

The scope of the institution, as now organized, cannot be better stated than in the comprehensive words of the act of Congress defining the duty of this and similar colleges:

> "The leading object shall be, without excluding other scientific and classical studies, and including military tactics, to teach such branches of learning as are related to agriculture and the mechanic arts, in such manner as the legislature of the state may prescribe, *in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions of life.*"

Based upon a broad foundation, the special work of the Oregon Agricultural College is the training of youth in those branches of learning which lie at the foundation of modern industrial pursuits. In accordance with the purposes of its founders, and the terms of its original charter, it aims to give special and prominent attention to agriculture, both theoretical and experimental; but it also provides "a liberal and practical education" in the leading branches of mathematical, natural and physical sciences, in order to prepare youth "for the several pursuits and professions of life." It has increased its subjects and courses of study, and its teaching and illustrative equipment, to such an extent that now, "without excluding classical studies," its leading object is to teach the various sciences in such a manner as to show their applications in the more important industries, and to combine with every branch of instruction such an amount of actual practice in the shop, the field, and the laboratory as will serve to illustrate and apply the theory, without subordinating it. The course in agriculture, as now arranged, conforms very closely to the recommendations of the *Association of American Agricultural Colleges and Experiment Stations.* The range of work in the various courses is shown, as far as space will allow, in the following descriptive statements and schedule. It is confidently believed that few institutions in the country furnish opportunities for obtaining advanced scientific education to an equal extent and thoroughness at so moderate a cost and with so many incidental advantages.

DEGREES AND COURSES OF STUDY.

UNDERGRADUATE WORK.

The college offers nine courses of instruction of four years each leading to the degree of Bachelor of Science, viz:—

Agriculture,
Forestry,
Household Science,
Mechanical Engineering,
Electrical Engineering,
Mining Engineering,
Civil Engineering,
Pharmacy,
Literary Commerce.

All of these require training in English, mathematics, history, elocution, drawing and such other branches as are requisite to a practical education.

In order that the college may meet the needs of a greater number of people and the students intensify along special lines, much of the work is made elective, as may be seen by reference to the courses of study published elsewhere in this catalogue.

In addition to the above courses provision has been made for courses in Vocal and Instrumental Music, a two-year course in Mining, a two-year course in Pharmacy, and short course in Agriculture and Dairying.

GRADUATES AND THESES.

Students intending to graduate must file notice of such intention accompanied with subject of thesis in the President's office on or before November 1. All theses should be ready for criticism by the Professor in English not later than April 15, and shall be neatly recopied and bound by May 25. Applications for certificates in a two-year course shall be filed not later than June 1.

GRADUATE WORK.

That students may be encouraged to continue their college work after graduation, the board of regents has made provision for courses leading to advanced degrees.

ADVANCED DEGREES.

Advanced degrees will be given to graduates of this college, or similar approved colleges, upon the following conditions:—

DEGREES IN ENGINEERING.

Degrees in Engineering will be conferred on graduates completing the fifth or graduate year in the following courses upon the approval of their theses by the head Professors:

Agriculture,
Electrical Engineering,
Mechanical Engineering,
Mining Engineering.

MASTER'S DEGREE.

An applicant for this degree must present himself for examination in one major and at least one minor study. Major and minor courses of two years leading to the degree of Master of Science, to be selected from different departments, approved by the faculty, are provided for in the departments of Agriculture, Botany, Forestry, Chemistry, Economics, Horticulture, Zoology, Mechanical and Electrical Engineering and Household Science. The minor, at the option of the student, may also be taken from the departments of Mathematics, English, History or Modern Languages. The candidate mustprepare a thesis, based upon original research, which shall show scholarly acquirements of a high order. This thesis must be printed or typewritten and bound, and two copies of it left in the college library. The candidate must spend at least one academic year, or its equivalent, as a resident student at this college in preparing for this degree.

The graduate year looking to the Engineering Degree will be accepted as the residence year for the Master's Degree.

Application for a Master's Degree shall be made to the Committee on Master's Degree, and if approved by the committee shall be submitted to the faculty for acceptance. If accepted by the faculty the candidate will be permitted to enter upon the prescribed courses of study leading to such degree; providing, the above application, when submitted to the committee, contained an exact statement of the work elected.

ALUMNI DIRECTORY.

Since the triennial edition of the catalogue containing the alumni directory will be issued regularly, all members and friends of the alumni association are earnestly invited to forward to the Registrar prior to April 1, such information as they may have relative to the addresses and occupations of the alumni.

COURSE IN AGRICULTURE.

FRESHMAN YEAR.

FIRST TERM.

Algebra 5	Mathematics I.
English Composition 5	English I
General History 5	History I.
* Freehand Drawing 1½, 3	Drawing I.
Elocution 1, 2	Elocution I.
*Woodwork 2½, 5	Shopwork I.
Military Drill 2½, 5	Military I.

SECOND TERM.

Geometry 5	Mathematics IVa.
English Composition 5	English II.
* General History 5	History II.
Elocution 1, 2	Elocution II.
Freehand Drawing 1½, 3	Drawing II.
Woodwork 2½, 5	Shopwork II.
Military Drill 2½, 5	Military II.
Physical Culture 1, 2	Physical Culture I.

THIRD TERM.

Geometry 5	Mathematics Va.
Composition and Rhetoric 5	English III.
Plant Morphology 5, 7	Botany I.
Breeds of Stock 5	Agriculture I.
*Freehand Drawing 2½, 5	Drawing III.
Military Drill 2½, 5	Military III.

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* Latin may be elected instead, but no credit will be given towards graduation for less than the full course of six terms.

SOPHOMORE YEAR.

FIRST TERM.

General Chemistry 5, 7	Chemistry I.
Trigonometry 5	Mathematics VI.
Rhetoric 5	English IV.
* Plant Histology 5, 7	Botany II.
Blacksmithing 1½, 3	Shopwork IV.
Military Drill 2½, 5	Military IV.

SECOND TERM.

Physics 3	Physics I.
Physical Laboratory 2, 4	Physics III
General Chemistry 5, 7	Chemistry II.
Rhetoric 4	English V.
Soils and Manures 2½	Agriculture III.
Dairying 2½	Agriculture II.
*Blacksmithing 2½, 5	Shopwork V.
Military Drill 2½, 5	Military V.
Physical Culture 1, 2	Physical Culture II.

THIRD TERM.

*Physics 3	Physics II
Physical Laboratory 2, 4	Physics IV.
Qualitative Analysis 5	Chemistry XV.
English Literature 5	English VI.
Zoology 5, 7	Zoology I.
Irrigation and Drainage 5	Agriculture IV.
Military Drill 2½, 5	Military VI.

JUNIOR YEAR.

FIRST TERM.

English Literature 5	English VII
*Entomology 5, 7	Zoology II.
Agricultural Chemistry 5	Chemistry IV.
Dairying 5	Agriculture V.
Military Drill 2½, 5	Military VIII.
Military Science 1	Military Science I.

SECOND TERM.

Plant Physiology 5, 7	Botany III.
*Literature 5	English VIII.
Vertebrate Anatomy 5, 7	Zoology III.
Agricultural Chemistry 5	Chemistry IVa.
Military Drill 2½, 5	Military IX.
Military Science 1	Military Science II.

THIRD TERM.

American Literature 5	English IX.
*Surveying 5, 9	Civil Engineering IV.
†Quantitative Chemistry 5, 7	Chemistry V.
American Politics 5	Political Science II.
Physiology 5, 7	Zoology IV.
Steam Engine 1, 2	Mechanics IV.
Military Drill 2½, 5	Military XI.
Military Science 1	Military Science III.

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† Required of students who elect thesis work in the department of chemistry.

SENIOR YEAR.

FIRST TERM.

Economics 5	Political Science I.
Geology 5	Geology I.
Horticulture 2½, Hort. I, or Agrostology 2½	Bot. XII.
German 5, or	German I.
French 5	French I.
Military Drill 2½, 5	Military XII.
Military Science 1	Military Science IV.

†Electives.

Chemistry 5, 7	Chemistry VI.
Mineralogy 3, 6	Mineralogy I.
The Forest 2	Forestry V
Kitchen Gardening	Gardening I.
Botany 5, 7	Botany V.
Zoology 5, 7	Zoology VI.
Bacteriology 5, 7	Bacteriology I.

SECOND TERM.

Psychology 5	Mental Science I.
Horticulture 2½	Horticulture II.
Stock Feeding and Breeding 5	Agriculture VI.
German, or	German II.
French 5	French II.
Military Drill 2½, 5	Military XIV.
Military Science 1	Military Science V.

†Electives.

Botany 5, 7	Botany V.
Forest Industries 5	Forestry VIII.
Kitchen Gardening 5	Gardening II.
Chemistry 5, 7	Chemistry VII.
Zoology 5, 7	Zoology VII.
Bacteriology 5, 7	Bacteriology II.

Assaying 3, 6	Mineralogy IV.
Elocution 1, 2	Elocution V.

THIRD TERM.

Soil Physics 5, 7	Chemistry XXII.
Veterinary Science 5	Agriculture VII.
Horticulture 5	Horticulture III.
German, or	German III.
French 5	French III.
Military Drill 2½, 5	Military XVI.
Military Science 1	Military Science VI.

†*Electives.*

American Literature 5	English IX.
Astronomy 5	Mathematics XI.
Forest Economics 5, or	Forestry X.
Forest Policy	Forestry XII.
Olericulture 5	Olericulture I.
Agricultural Engineering 5	Civil Engineering X.
Botany 5, 7	Botany VI or VII.
Zoology 5, 7	Zoology VIII.
Chemistry 5, 7	Chemistry VIII.
Bacteriology 5, 7	Bacteriology III.
Assaying 3, 6	Mineralogy IV.

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† In addition to the required studies seniors must select from the electives a sufficient number of hours to form a full course of 22 hours, counting thesis five hours for last two terms.

A student may upon obtaining written consent of the heads of departments interested, substitute higher mathematics for any other branch of study.

GRADUATE YEAR.

FIRST TERM.

German 5, or	German IV.
French 5	French IV.
Highway Construction 5, 7	Civil Engineering VII.
Farm Mechanics 5	Agriculture VIII.
Thesis 3	

SECOND TERM.

German 5, or	German V.
French 5	French V.
Highway Construction 5, 7	Civil Engineering VIII.
Farm Management 5	Agriculture IX.
Thesis 3	

THIRD TERM.

German 5, or	German VI.
French 5	French VI.
Live Stock Management 5	Agriculture X.
Thesis 3	

Electives.

Steam Engines and Boilers 4	Mechanical Eng. VII.
Agricultural Engineering 5, or	Civil Engineering X.
Other Electives of Senior year 5.	

COURSE IN HOUSEHOLD SCIENCE.

FRESHMAN YEAR.

FIRST TERM.

Algebra 5	Mathematics I.
English Composition 5	English I.
General History 5	History I.
* Freehand Drawing 1½, 3	Drawing I.
Elocution 1, 2	Elocution I.
General Hygiene ½, 1	Household Science I.
Sewing 2, 4	Household Science II.
Physical Culture 1½, 3	Physical Culture I.

SECOND TERM.

Geometry 5	Mathematics IVa.
English Composition 5	English II.
*General History 5	History II.
Elocution 1, 2	Elocution II.
Freehand Drawing 1½, 3	Drawing II.
Etiquette ½, 1	Household Science III
Sewing 2, 4	Household Science IV.
Physical Culture 1½, 3	Physical Culture II.

THIRD TERM.

Geometry 5	Mathematics Va.
Composition and Rhetoric 5	English III.
Plant Morphology 5, 7	Botany I.
*Freehand Drawing 2½, 5	Drawing III.
Elocution 1, 2	Elocution III.
Sewing 2½, 5	Household Science V.
Physical Culture 1½, 3	Physical Culture III.

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*Latin or German may be elected instead, but no credit will be given towards graduation for less than the full course of six terms.

SOPHOMORE YEAR.

FIRST TERM.

General Chemistry 5, 7	Chemistry I.
Plant Histology 5, 7	Botany II.
Rhetoric 5	English IV.
Dressmaking 2½, 5	Household Science VI.
*Physical Culture 1½, 3	Physical Culture IV.
Care of the Sick 2	Household Science XV.

SECOND TERM.

*Floriculture 5	Floriculture I.
History of Eastern Peoples 5	History III.
General Chemistry 5, 7	Chemistry II.
Rhetoric 4	English V.
Dressmaking 2½, 5	Household Science VII.
Physical Culture 1½, 3	Physical Culture V.

THIRD TERM.

English Literature 5	English VI.
Zoology 5, 7	Zoology I.
Chemistry of Common Life	Chemistry XI.
Modern History 5	History IV.
* Dressmaking 2½, 5	Household Science VIII.

JUNIOR YEAR.

FIRST TERM.

Literature 5	English VII.
Entomology 5, 7	Zoology II.
Floriculture 5	Floriculture II.
German 5, or,	German I.
Latin 5	Latin I.
Cookery 1½, 3	Household Science IX.

SECOND TERM.

Plant Physiology 5, 7	Botany III.
Literature 5	English VIII.
German 5, or,	German II.
Latin 5	Latin II.
Vertebrate Anatomy 5, 7	Zoology III.
Cookery 1½, 3	Household Science X.
Physical Culture 1½, 3	Physical Culture VI.

THIRD TERM.

Dairying 5, or,	Agriculture V.
American Literature 5	English IX.
German 5, or,	German III.
Latin 5	Latin III.
Physiology 5, 7	Zoology IV.
American Politics 5	Political Science II.
Cookery 3	Household Science XI

Students desiring to elect thesis work in the department of chemistry must take Course V in chemistry during the third term of the Junior year.

SENIOR YEAR.

FIRST TERM.

Economics 5	Political Science I.
Aesthetics 5	Household Science XII.
German 5, or,	German IV.
Latin 5	Latin IV.

†*Electives.*

Literature 5	English X.
Botany 5, 7	Botany IV.
Zoology 5, 7	Zoology V.
Bacteriology 5, 7	Bacteriology I.
Elocution 1, 2	Elocution IV.
Drawing 2½, 5	Drawing IV.
Chemistry of Foods 5, 7	Chemistry XII.
Geology 5	Geology I.

SECOND TERM.

Psychology 5	Mental Science I.
German 5, or,	German V.
Latin 5	Latin V.
Aesthetics 5	Household Science XIII.

†*Electives.*

Physics 3, 7	Physics I.
Physical Laboratory 2, 4	Physics IV.
Chemistry of Foods 5, 7	Chemistry XIII.
Zoology 5, 7	Zoology VI.
Botany 5, 7	Botany V.
Elocution 1, 2	Elocution V.
Drawing 2½ 5	Drawing V.
Bacteriology 5, 7	Bacteriology II.
Literature 5	English XI.

THIRD TERM.

Domestic Lectures 5	Household Science XIV.
German 5, or,	German VI.
Latin 5	Latin VI.

† *Electives.*

Literature 5	English XII.
Physics 3	Physics II.
Physical Laboratory 2, 4	Physics IV.
Chemistry of Foods 5, 7	Chemistry XIV.
Zoology 5, 7	Zoology VII.
Botany 5, 7	Botany VI.
Elocution 1, 2	Elocution VI.
Drawing 2½, 5	Drawing VI.
Astronomy 5	Mathematics XI.
Bacteriology 5, 7	Bacteriology III.
Landscape Gardening 5	Floriculture IV.

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† In addition to the regular studies seniors must select from the electives enough hours to form a full course of 22 hours, counting thesis 5 hours for last two terms.

COURSE IN MECHANICAL ENGINEERING

FRESHMAN YEAR.

FIRST TERM.

Algebra 5	Mathematics I.
English Composition 5	English I.
General History 5	History I.
Freehand Drawing 1½, 3	Drawing I.
* Elocution 1, 2	Elocution I.
Woodwork 2½, 5	Shopwork I.
Military Drill 2½, 5	Military I.

SECOND TERM.

Geometry 5	Mathematics IV.
English Composition 5	English II.
*General History 5	History II.
Elocution 1, 2	Elocution II.
Freehand Drawing 1½, 3	Drawing II.
Woodwork 2½, 5	Shopwork II.
Military Drill 2½, 5	Military II.
Physical Culture 1, 2	Physical Culture I.

THIRD TERM.

Geometry 5	Mathematics V.
Composition and Rhetoric 5	English III.
Modern History 5	History IV.
*Freehand Drawing 2½, 5	Drawing III.
Woodwork 2½, 5	Shopwork III.
Military Drill 2½, 5	Military III.

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* Latin may be elected instead, but no credit will be given towards graduation for less than the full course of six terms.

SOPHOMORE YEAR.

FIRST TERM.

Trigonometry 5	Mathematics VI.
Rhetoric 5	English IV.
Mechanical Drawing 5, 10	Mechanical Engineering I.
*Blacksmithing 2½, 5	Shopwork IV.
Military Drill 2½, 5	Military IV.

SECOND TERM.

Algebra 5	Mathematics II.
Physics 3	Physics I.
Physical Laboratory 2, 4	Physics III.
Rhetoric 4	English V.
*Mechanical Drawing 2½, 5	Mechanical Engineering II.
Blacksmithing 2½, 5	Shopwork V.
Military Drill 2½, 5	Military V.
Physical Culture 1, 2	Physical Culture II.

THIRD TERM.

Algebra 5	Mathematics III.
Physics 3	Physics II.
Physical Laboratory	Physics IV.
English Literature 5	English VI.
Mechanical Drawing 1½, 3	Mechanical Engineering III.
Blacksmithing 2½, 5	Shopwork VI.
Military Drill 2½, 5	Military VI.

§JUNIOR YEAR.

FIRST TERM.

General Chemistry 5, 7	Chemistry I.
*Literature 5	English VII.
Analytical Geometry 5	Mathematics VII.
Descriptive Geometry 5	Mechanical Engineering V.
Machine Shop 2½, 5	Shopwork VII.
Military Drill 2½, 5	Military VII.
Military Science 1	Military Science I.

SECOND TERM.

General Chemistry 5, 7	Chemistry II.
Materials of Engineering 3	Mechanical Engineering XX.
*Descriptive Geometry 1½, 3	Mechanical Engineering VI.
Calculus 5	Mathematics VIII.
Machine Shop 2½, 5	Shopwork VIII.
Military Drill 2½, 5	Military IX.
Military Science 1	Military Science II.

THIRD TERM.

Mechanism 5, 7	Mechanical Engineering IV.
Calculus 5	Mathematics IX.
Steam Engines and Boilers 4,	Mechanical Engineering VII.
American Politics 5	Political Science II.
*Machine Shop 2, 4	Shopwork IX.
Military Drill 2½, 5	Military XI.
Military Science 1	Military Science III.

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§Students wishing to specialize in electrical engineering may elect to do so at the beginning of the junior year.

SENIOR YEAR.

FIRST TERM.

Economics 5	Political Science I.
Mechanics of Engineering 5,	Mechanical Engineering VIII.
Physics 5, 7	Physics V.
German 5, or,	German I.
French 5	French I.
Military Drill 2½, 5	Military XII.
Military Science 1	Military Science IV.

†*Electives.*

Literature 5	English X.
Woodwork 2½, 5	Shopwork X.
Ironwork 2½, 5	Shopwork XI.
Mechanical Drawing 2½, 5	Mechanical Engineering X.
Mineralogy 3, 6	Mineralogy I.

SECOND TERM.

Psychology 5	Mental Science I.
Mechanics of Engineering 5,	Mechanical Engineering XII.
German 5, or,	German II.
French 5	French II.
Military Drill 2½, 5	Military XIV.
Military Science 1	Military Science V.

†*Electives.*

Literature 5	English XI.
Structure of Woods and Metals 5, 7	Botany XI.
Woodwork 2½, 5	Shopwork XII.
Ironwork 2½, 5	Shopwork XIII.
Mechanical Drawing 2½, 5	Mechanical Engineering XIII.
Assaying 3, 6	Mineralogy IV.
Elocution 1, 2	Elocution V.

THIRD TERM.

Mechanics of Engineering 5	Mechanical Engineering XIV.
German 5, or,	German III.
French 5	French III.
Military Drill 2½, 5	Military XVI.
Military Science 1	Military Science VI.

†*Electives.*

Astronomy 5	Mathematics XI.
American Literature 5	English IX.
Surveying 5, 9	Civil Engineering IV.
Woodwork 2½, 5	Shopwork XIV.
Ironwork 2½, 5	Shopwork XV.
Mechanical Drawing 2½, 5	Mechanical Engineering XVI.
Assaying 3, 6	Mineralogy V.

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† In addition to the regular studies seniors must select from the electives enough hours to form a full course of 22 hours, counting thesis 5 hours for last two terms.

GRADUATE YEAR.

FIRST TERM.

German 5, or	German I
French 5	French I
Hydraulic Motors 3	Mechanical Engineering XXI
Thermodynamics 5	Mechanical Engineering IX
Experimental Engineering 2, 4	Mechanical Eng. XXIV

SECOND TERM.

German 5 or	German II
French 5	French II
Machine Design 5, 7	Mechanical Engineering XI
Internal Combustion Engines 3	Mechanical Eng. XXII
Experimental Engineering 2, 4	Mechanical Eng. XXV

THIRD TERM.

German 5 or,	German III
French 5	French III
Machine Design 5, 7	Mechanical Engineering XV
Power Plants and Transmis. of Power 3	Mech. Eng. XXIII
Experimental Engineering 2, 4	Mechanical Eng. XXVI

JUNIOR YEAR—ELECTRICAL.

FIRST TERM.

Electricity and Magnetism 6, 9	Electrical Engineering I.
Descriptive Geometry 5	Mechanical Engineering V.
Analytical Geometry 5	Mathematics VII.
General Chemistry 5, 7	Chemistry I.
*Machine Shop 2½, 5	Shopwork VII.
Military Drill 2½, 5	Military VII.
Military Science 1	Military Science I.

SECOND TERM.

Electricity and Magnetism 5, 7	Electrical Engineering II.
General Chemistry 5, 7	Chemistry II.
*Descriptive Geometry 1½, 3	Mechanical Engineering VI.
Calculus 5	Mathematics VIII.
Machine Shop 2½, 5	Shopwork VIII.
Military Drill 2½, 5	Military IX.
Military Science 1	Military Science II.

THIRD TERM.

Calculus 5	Mathematics IX.
Electricity and Magnetism 3	Electrical Engineering III.
Steam Engines and Boilers 4	Mechanical Engineering VII.
American Politics 5	Political Science II.
Mechanism 5, 7	Mechanical Engineering IV.
Machine Shop 2, 4	Shopwork IX.
Military Drill 2½, 5	Military XI.
Military Science 1	Military Science III.

SENIOR YEAR.

FIRST TERM.

Economics 5	Political Science I.
Mechanics of Engineering 5	Mechanical Engineering VIII.
Alternating Currents and Dynamo Design 5, 7	Electrical Engineering IV.
German 5, or	German I.
French 5	French I.
Military Drill 2½, 5	Military XII.
Military Science 1	Military Science IV.

† *Electives.*

Literature 5	English X.
Woodwork 2½, 5	Shopwork X.
Ironwork 2½, 5	Shopwork XI.
Mechanical Drawing 2½, 5	Mechanical Engineering X.
Mineralogy 3, 6	Mineralogy I.

SECOND TERM.

Psychology 5	Mental Science I.
Mechanics of Engineering 5	Mechanical Engineering XII.
Alternating Currents and Dynamo Design 5, 7	Electrical Engineering V.
German 5, or	German II.
French 5	French II.
Military Drill 2½, 5	Military XIV.
MilitaryScience 1	Military Science V.

† *Electives.*

Woodwork 2½, 5	Shopwork XII.
Ironwork 2½, 5	Shopwork XIII.
Mechanical Drawing 2½, 5	Mechanical Engineering XIII.

†Assaying 3, 6	Mineralogy IV.
Elocution 1, 2	Elocution V.
Literature 5	English XI.

THIRD TERM.

Mechanics of Engineering 5	Mechanical Engineering XIV.
Alternating Currents and Dynamo Design 5, 7	Electrical Engineering VI.
German 5, or	German III.
French 5	French III.
‡Military Drill 2½, 5	Military XVI.
Military Science 1	Military Science VI.

†*Electives.*

Astronomy 5	Mathematics XI.
American Literature, 5	English IX.
Surveying 5, 9	Civil Engineering IV.
Woodwork 2½, 5	Shopwork XIV.
Ironwork 2½, 5	Shopwork XV.
Mechanical Drawing 2½, 5	Mechanical Engineering XIV.
Assaying 3, 6	Mineralogy V.

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† Students electing Assaying must have previously taken Mineralogy I.

‡ Seniors who accept commissions as cadet officers are required to drill during the third term.

In addition to the regular studies seniors must select from the electives enough hours to form a full course of 22 hours, counting thesis five hours for last two terms.

GRADUATE YEAR.

FIRST TERM.

German 5 or	German IV
French 5	French IV
Thermodynamics 5	Mechanical Engineering IX
Advanced Alternat. Cur. Theory 5, 7	Electrical Eng. VII

SECOND TERM.

German 5 or	German V
French 5	French V
Machine Design 5, 7	Mechanical Engineering XI
Advanced Alternat. Cur. Theory 5, 7	Electrical Eng. VIII

THIRD TERM.

German 5 or	German VI
French 5	French VI
Machine Design 5, 7	Mechanical Engineering XV
Advanced Alternat. Cur. Theory 5, 7	Electrical Eng. IX

COURSE IN PHARMACY.

FRESHMAN YEAR.

FIRST TERM.

‡Algebra 5	Mathematics I.
‡English Composition 5	English I.
General History 5	History I.
‡Latin 5	Latin I.
Freehand Drawing 1½, 3	Drawing I.
Elocution 1, 2	Elocution I.
‡ †Military Drill 2½, 5	Military I.

SECOND TERM.

Geometry 5	Mathematics IVa.
‡English Composition 5	English II.
‡Latin 5	Latin II.
General History 5	History II.
Freehand Drawing 1½, 3	Drawing II.
Elocution 1, 2	Elocution II.
‡Military Drill 2½, 5	Military II.
‡Physical Culture 1, 2	Physical Culture I.

THIRD TERM.

Geometry 5	Mathematics Va.
‡Composition and Rhetoric 5	English III.
‡Latin 5	Latin III.
Plant Morphology 5, 7	Botany I.
‡Military Drill 2½, 5	Military III.

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†Throughout the course young ladies take Physical Culture instead.

‡Students desiring to take a short course in Pharmacy will be given a certificate in Pharmacy after completing the studies marked (‡).

SOPHOMORE YEAR.

FIRST TERM.

‡General Chemistry 5, 7	Chemistry I.
Rhetoric 5	English IV.
German 5	German I.
Plant Histology 5, 7	Botany II.
‡Military Drill 2½, 5	Military IV.

SECOND TERM.

Physics 3	Physics I.
Physical Laboratory 2, 4	Physics III.
Rhetoric 4	English V.
German 5	German II.
‡General Chemistry 5, 7	Chemistry II.
‡Military Drill 2½, 5	Military V.
Physical Culture 1, 2	Physical Culture I.

THIRD TERM.

German 5	German III.
Zoology 5, 7	Zoology I.
‡Qualitative Analysis 5, 10	Chemistry XV.
Physics 3	Physics II.
Physical Laboratory 2, 4	Physics IV.
‡Military Drill 2½, 5	Military VI.

JUNIOR YEAR.

FIRST TERM.

Literature 5	English VII.
‡Qualitative Analysis 5	Chemistry XVI.
‡Therapeutics and Doses 2	Pharmacy V.
‡Pharmacy 2	Pharmacy II.
‡Nomenclature 1	Pharmacy VI.
German 5	German IV.
Military Drill 2½, 5	Military VII.
Military Science 1	Military Science I.

SECOND TERM.

‡Organic Chemistry 5, 7	Chemistry XVII.
‡Pharmacognosy 2	Pharmacy III.
Vertebrate Anatomy 5, 7	Zoology III.
‡Pharmacy 3, 5	Pharmacy IV.
Literature 5	English VIII.
German 5	German V.
Military Drill 2½, 5	Military IX.
Military Science 1	Military Science II.

THIRD TERM.

‡Quantitative Analysis 5, 10	Chemistry V.
Physiology 5, 7	Zoology IV.
Plant Classification 5, 7	Botany VII.
‡Pharmacognosy 2	Pharmacy I.
‡Pharmacy 3, 5	Pharmacy VII.
German 5	German VI.
Military Drill 2½ 5	Military XI.
Military Science 1	Military Science III.

SENIOR YEAR.

FIRST TERM.

‡Materia Medica and Therapeutics 3	Pharmacy VIII.
‡Operative Pharmacy 4, 6	Pharmacy IX.
‡Pharmaceutical Analysis 5, 10	Chemistry XVIII.
Bacteriology 5, 7	Bacteriology I.
Military Drill 2½, 5	Military XII.
Military Science 1	Military Science IV.

SECOND TERM.

‡Materia Medica and Therapeutics 3	Pharmacy XIV.
‡Prescription Practice 4½, 7	Pharmacy X.
‡Pharmaceutical Analysis 5, 10	Chemistry XIX.
Bacteriology 5, 7	Bacteriology II.
Military Drill 2½, 5	Military XIV.
Military Science 1	Military Science V.

THIRD TERM.

‡Pharmacognosy and Synonyms 3	Pharmacy XI.
‡Prescription Practice 5½, 8	Pharmacy XV.
‡Toxicology 1	Pharmacy XIII.
‡Pharmaceutical Analysis 5, 10	Chemistry XX.
Bacteriology 5, 7	Bacteriology III.
Military Drill 2½, 5	Military XVI.
Military Science 1	Military Science VI.

COURSE IN CIVIL ENGINEERING.

FRESHMAN YEAR.

FIRST TERM.

Algebra 5	Mathematics I
English Composition 5	English I
General History 5	History I
*Freehand Drawing 1½, 3	Drawing I
*Elocution 1, 2	Elocution I
Woodwork 2½, 5	Shopwork I
Military Drill 2½, 5	Military I

SECOND TERM.

Geometry 5	Mathematics IV
English Composition 5	English II
*General History 5	History II
Freehand Drawing 1½, 3	Drawing II
Elocution 1, 2	Elocution II
Woodwork 2½, 5	Shopwork II
Military Drill 2½, 5	Military II
Physical Culture 1, 2	Physical Culture I

THIRD TERM.

Geometry 5	Mathematics V
Composition and Rhetoric 5	English III
Modern History 5	History IV
*Freehand Drawing 2½, 5	Drawing III
Woodwork 5	Shopwork III
Military Drill 2½, 5	Military III

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*Latin may be elected instead, but no credit will be given toward graduation for less than the full course of six terms.

SOPHOMORE YEAR.

FIRST TERM.

General Chemistry 5, 7 .... Chemistry I
Trigonometry 5 .... Mathematics VI
Rhetoric 5 .... English IV
*Mechanical Drawing 5, 10.... Mechanical Engineering I
Blacksmithing 2½, 5 .... Shopwork V
Military Drill 2½, 5 .... Military IV

SECOND TERM.

Physics 3 .... Physics I
Physical Laboratory 2, 4 .... Physics III
Algebra 5 .... Mathematics II
General Chemistry 5, 7 .... Chemistry II
*Mechanical Drawing 2½, 5 .... Mechanical Engineering II
Surveying 5, 7 .... Civil Engineering I
Military Drill 2½, 5 .... Military V
Physical Culture 1, 2 .... Physical Culture II

THIRD TERM.

Physics 3 .... Physics II
Physical Laboratory 2, 4 .... Physics IV
*Algebra 5 .... Mathematics III
Surveying 5, 10 .... Civil Engineering II
Qualitative Analysis 5, 10 .... Chemistry XV
Military Drill 2½, 5 .... Military VI

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*Latin may be elected instead, but no credit will be given toward graduation for less than the full course of six terms.

JUNIOR YEAR.

FIRST TERM.

Surveying 3, 6	Civil Engineering III
Analytical Geometry 5	Mathematics VII
*Descriptive Geometry 5	Mechanical Engineering V
Machine Shop 1½, 2½	Shopwork VII
Geology 5	Geology I
Military Drill 2½, 5	Military VII
Military Science 1	Military Science I

SECOND TERM.

Railroads 5, 7	Civil Engineering V
Geology 5	Geology II
*Descriptive Geometry 1½, 3	Mechanical Engineering XI
Calculus 5	Mathematics VIII
Machine Shop 2½, 5	Shopwork VIII
Military Drill 2½, 5	Military IX
Military Science 1	Military Science II
Materials of Engineering 3	Mechanical Engineering XX

THIRD TERM.

Calculus 5	Mathematics IX
Steam Engines and Boilers 4	Mechanical Engineering VII
*American Politics	Political Science II
Railroads 5, 8	Civil Engineering VI
Military Drill 2½, 5	Military XI
Military Science 1	Military Science III

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*Latin or German may be elected instead, but no credit will be given toward graduation for less than the full course of six terms.

SENIOR YEAR.

FIRST TERM.

German 5 or	German I
French 5	French I
Mechanics of Engineering 5	Mechanical Engineering VIII
Highway Construction 5, 7	Civil Engineering VII
Physics 3½, 7	Physics V
Military Drill 2½, 5	Military XII
Military Science 1	Military Science IV

SECOND TERM.

German 5 or	German II
French 5	French II
Highway Construction 5, 9	Civil Engineering VIII
Psychology 5	Mental Science I
Mechanics of Engineering 5	Mechanical Engineering XII
Military Drill 2½, 5	Military XIV
Military Science 1	Military Science V

THIRD TERM.

Mining Engineering 5	Mathematics XV
German 5 or	German III
French 5	French III
Mechanics of Engineering 5	Mechanical Engineering XIV
Masonry Construction and Foundations 5	Civil Eng. IX
Military Drill 2½, 5	Military XVI
Military Science 1	Military Science VI

GRADUATE YEAR.

FIRST TERM.

Roofs and Bridges 5, 7	Civil Engineering XI
German 5 or	German IV
French 5	French IV

‡ Thesis 3; † Electives 5

SECOND TERM.

Roofs and Bridges 5, 7	Civil Engineering XII
Sanitary Engineering 4, 7	Civil Engineering XVI
German 5 or	German V
French 5	French V

‡ Thesis 3; † Electives 2

THIRD TERM.

Water Supply Engineering 5, 8	Civil Engineering XVII
German 5 or	German VI
French 5	French VI
Contracts and Specifications 2	Civil Engineering XVIII

‡ Thesis 3; † Electives 3

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‡ Subject for thesis to be chosen by student and approved by the head of the Department of Civil Engineering not later than October 1.

† To be selected from the Mechanical, Electrical or Mining Courses subject to the approval of the Professor of Civil Engineering.

‡ COURSE IN MINING.

FRESHMAN YEAR.

FIRST TERM.

†Algebra 5	Mathematics I.
†English Composition 5	English I.
†General History 5	History I.
*Freehand Drawing 1½, 3	Drawing I.
*Elocution 1, 2	Elocution I.
†Woodwork 2½, 5	Shopwork I.
†Military Drill 2½, 5	Military I.

SECOND TERM

Geometry 5	Mathematics IV.
†English Composition 5	English II.
General History 5	History II.
*Freehand Drawing 1½, 3	Drawing II.
Elocution 1, 2	Elocution II.
†Woodwork 2½, 5	Shopwork II.
†Military Drill 2½, 5	Military II.
†Physical Culture 1, 2	Physical Culture I.

THIRD TERM.

Geometry 5	Mathematics V.
†Composition and Rhetoric 5	English III.
Modern History 5	History IV.
*Freehand Drawing 2½, 5	Drawing III.
Woodwork 5	Shopwork III
†Military Drill 2½, 5	Military III.

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‡ Students desiring to take a short course in mining will be given a certificate in mining after completing the studies marked [†].

* Latin may be elected instead, but no credit will be given toward graduation for less than the full course of six terms.

SOPHOMORE YEAR.

FIRST TERM.

General Chemistry 5, 7	Chemistry I.
Trigonometry 5	Mathematics VI.
†Rhetoric 5	English IV.
*Mechanical Drawing 5, 10	Mechanical Engineering I.
†Blacksmithing 2½, 5	Shopwork IV.
†Military Drill 2½, 5	Military IV.

SECOND TERM.

Physics 3.	Physics I.
Physical Laboratory 2, 4	Physics III.
Algebra 5	Mathematics II.
General Chemistry 5, 7	Chemistry II.
*Mechanical Drawing 2½, 5	Mechanical Engineering II.
†Surveying 5, 7	Civil Engineering I
†Military Drill 2½, 5	Military V.
Physical Culture 1, 2	Physical Culture II.

THIRD TERM.

Physics 3	Physics II.
Physical Laboratory 2, 4	Physics IV.
*Algebra 5	Mathematics III.
Surveying 5, 10	Civil Engineering II
Qualitative Analysis 5, 10	Chemistry XV.
†Military Drill 2½, 5	Military VI.

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* Latin may be elected instead, but no credit will be given toward graduation for less than the full course of six terms.

JUNIOR YEAR.

FIRST TERM.

Surveying 3, 6	Civil Engineering III.
Analytical Geometry 5	Mathematics VII.
*Descriptive Geometry 5	Mechanical Engineering V.
†Machine Shop 1½, 2½	Shopwork VII.
†Geology 5	Geology I.
Military Drill 2½, 5	Military VII.
Military Science 1	Military Science I.

SECOND TERM.

Metallurgy of Iron 5	Metallurgy I.
†Geology 5	Geology II.
*Descriptive Geometry 1½, 3	Mechanical Engineering XI.
Calculus 5	Mathematics VIII.
†Machine Shop 2½, 5	Shopwork VIII.
Military Drill 2½, 5	Military IX.
Military Science 1	Military Science II.

THIRD TERM.

Calculus 5	Mathematics IX.
Steam Engines and Boilers 4	Mech. Engineering VII.
*American Politics 5	Political Science II.
†Mineralogy 5, 7	Mineralogy I.
Military Drill 2½, 5	Military XI.
Military Science 1	Military Science III.

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*Latin or German may be elected instead, but no credit will be given toward graduation for less than the full course of six terms.

SENIOR YEAR.

FIRST TERM.

†Mineralogy 5, 7	Mineralogy II.
Mechanics of Engineering 5	Mechanical Engineering VIII.
Economics 5	Political Science I.
German 5 or	German I.
French 5	French I.
Military Drill 2½, 5	Military XII.
Military Science 1	Military Science IV.

SECOND TERM.

Mineralogy 5, 7	Mineralogy III.
†Assaying 3, 6	Chemistry IX.
German 5 or	German II.
French 5	French II.
Mechanics of Engineering 5	Mechanical Engineering XII.
Military Drill 2½, 5	Military XIV.
Military Science 1	Military Science V.

THIRD TERM.

Mining Engineering 5	Mining Engineering XV.
†Assaying 3, 6	Chemistry X.
Mechanics of Engineering 5	Mechanical Engineering XIV.
German 5 or	German III.
French 5	French III.
Military Drill 2½, 5	Military XVI.
Military Science 1	Military Science VI.

GRADUATE YEAR.

FIRST TERM.

German 5 or	German IV
French 5	French IV
Physics 5	Physics V
General Metallurgy 5	Metallurgy I
Thesis 2.	

SECOND TERM.

German 5 or	German V
French 5	French V
Psychology 5	Mental Science I
Special Processes 5	Metallurgy II
Thesis 2.	

THIRD TERM.

German 5 or	German VI
French 5	French VI
Metallurgy of Iron and Steel 5	Metallurgy III
Metallurgical Practice 5	Metallurgy IV
Thesis 2.	

LITERARY COMMERCE COURSE.

FRESHMAN YEAR.

FIRST TERM.

General History 5	History I.
English Composition 5	English I.
Commercial Arithmetic 5	Arithmetic I.
Algebra 5	Mathematics I.
Elocution 1, 2	Elocution I.
Military Drill 2½, 5	Military I.
Physical Culture 1½, 3	Physical Culture I.

SECOND TERM.

General History 5	History II.
English Composition 5	English II.
Commercial Arithmetic 5	Arithmetic II.
Geometry 5	Mathematics IV.
Elocution 1, 2	Elocution II.
Military Drill 2½, 5	Military II.
Physical Culture 1½, 3	Physical Culture II.

THIRD TERM.

Modern History 5	History IV.
Composition and Rhetoric 5	English III.
Commercial Arithmetic 5	Arithmetic III.
Geometry 5	Mathematics V.
Penmanship 3	Penmanship I.
Military Drill 2½, 5	Military III.
Physical Culture 1½, 3	Physical Culture III.

SOPHOMORE YEAR.

FIRST TERM.

Bookkeeping 5	Bookkeeping I.
Latin 5 or	Latin I.
German 5	German I.
Rhetoric 5	English IV.
Penmanship 3	Penmanship II.
Floriculture 2, 3	Floriculture I.
Military Drill 2½, 5	Military IV.
Physical Culture 1½, 3	Physical Culture IV.

SECOND TERM.

Bookkeeping 5	Bookkeeping II.
Latin 5 or	Latin II.
German 5	German II.
Rhetoric 4	English V.
Penmanship 3	Penmanship III
Algebra 5	Mathematics II.
Military Drill 2½, 5	Military V.
Physical Culture 1½, 3	Physical Culture V.

THIRD TERM.

Bookkeeping 5	Bookkeeping III.
Latin 5 or	Latin III.
German 5	German III.
Penmanship 3	Penmanship IV.
Algebra 5	Mathematics III.
Physiology 5, 7	Zoology IV.
Military Drill 2½, 5	Military VI.
Physical Culture 1½, 3	Physical Culture VI.

JUNIOR YEAR.

FIRST TERM.

Bookkeeping 3	Bookkeeping IV.
Latin 5, or,	Latin IV.
German 5	German IV.
English 5	English VII.
Penmanship 3	Penmanship V.
Stenography 4	Stenography I.
Typewriting 4	Typewriting I.
Military Drill 2½, 5	Military VII.
Military Science 1	Military Science I.
Physical Culture 1½, 3	Physical Culture VII.

SECOND TERM.

Bookkeeping 3	Bookkeeping V.
Latin 5, or,	Latin V.
German 5	German V.
Penmanship 3	Penmanship VI.
Stenography 4	Stenography II.
Typewriting 4	Typewriting II.
English 5	English VIII.
Military Drill 2½, 5	Military VIII.
Military Science 1	Military Science II.
Physical Culture 1½, 3	Physical Culture VIII.

THIRD TERM.

Bookkeeping 3	Bookkeeping VI.
Latin 5, or,	Latin VI.
German 5	German VI.
Penmanship 3	Penmanship VII
American Politics 5	Political Science II.
Stenography 4	Stenography III.
Typewriting 4	Typewriting III.
Military Science 1	Military Science III.
Military Drill 2½, 5	Military IX.
Physical Culture 2½, 5	Physical Culture IX.

SENIOR YEAR.

FIRST TERM.

Economics 5	Political Science I.
Commercial Law 3	Commercial Law I.
English 5	English X.
Aesthetics 5	Household Science XII.
Military Science 1	Military Science IV.
Military Drill 2½, 5	Military X.
Physical Culture ¾, 1½	Physical Culture X.

SECOND TERM.

Commercial Law 3	Commercial Law II.
English 5	English XI.
History of Eastern Nations 5	History III.
Psychology 5	Mental Science I.
Military Science 1	Military V.
Military Drill 2½, 5	Military XI.
Physical Culture ¾, 1½	Physical Culture XI.

THIRD TERM.

Stenography 3	Stenography IV.
Typewriting 2	Typewriting IV.
Plant Morphology 5, 7	Botany I.
English 5	English IX.
Military Science 1	Military Science VI.
Military Drill 2½, 5	Military XII.
Physical Culture 2½, 5	Physical Culture XII.

COURSE IN FORESTRY.

FRESHMAN YEAR.

Forestry I throughout the year.

FIRST TERM.

Algebra 5	Mathematics I
English Composition 5	English I
Bookkeeping 5	Bookkeeping I
Woodwork 2½, 5	Shopwork I
Freehand Drawing 2½, 5	Drawing I
Declamation 2	Elocution I
Military Drill 2½, 5	Military I

SECOND TERM.

Geometry 5	Mathematics IV
English Composition 5	English II
Bookkeeping 5	Bookkeeping II
Woodwork 2½, 5	Shopwork II
Freehand Drawing 2½	Drawing II
Declamation 2	Elocution II
Military Drill 2½, 5	Military II

THIRD TERM.

Geometry 5	Mathematics V
Composition and Rhetoric 5	English III
Plant Morphology and Ecology 5, 7	Botany I
Woodwork 2½, 5	Shopwork III
Breeds of Stock 5	Agriculture I
Military Drill 2½, 5	Military III

SOPHOMORE YEAR.

Forestry I throughout the year.

FIRST TERM.

Rhetoric 5	English IV
Trigonometry 5	Mathematics VI
Inorganic Chemistry 5, 7	Chemistry I
Plant Histology 6	Botany II
Sylviculture 1	Forestry IV
Woodwork 2½, 5	Shopwork IV
Military Drill 2½, 5	Military IV

SECOND TERM.

Rhetoric 5	English V
Inorganic Chemistry 5, 7	Chemistry II
Surveying 10	Civil Engineering I
Plant Physiology 6	Botany III
Sylviculture 1	Forestry IV
Woodwork 2½, 5	Shopwork V
Military Drill 2½, 5	Military V

THIRD TERM.

Qualitative and Technical Chemistry 5, 7	Chemistry III, IV
Surveying 10	Civil Engineering II
Plant Classification and Phyto-geography 6	Botany IV
Invertebrate 5, 7	Zoology I
Sylviculture 1	Forestry IV
Woodwork 2½, 5	Shopwork VI
Military Drill 2½, 5	Military VI

JUNIOR YEAR.

Forestry II throughout the year.

At the close of the third term all students report for assignment to "Summer Camp" work.

FIRST TERM.

German 5 or	German I
French 5	French I
Forest Entomology 5, 7	Zoology II
The Forest 2	Forestry V
Surveying 6	Civil Engineering III
Mechanical Drawing 2	Drawing IV
Typewriting 3	Typewriting I
Military Drill 2½, 5	Military VII
Military Science 1	Military Science I

SECOND TERM.

German 5 or	German II
French 5	French II
Vertebrate Anatomy 5, 7	Zoology III
Elements of Physics 5, 7	Physics I
Physiography 5	Geography I
Typewriting 3	Typewriting II
Military Drill 2½, 5	Military VIII
Military Science 1	Military Science II

THIRD TERM.

German 5 or	German III
French 5	French III
Physiography and Climatology 5	Geography II, III
Elements of Physics 5, 7	Physics II
Dendrology 5	Forestry VI
Soils and Waters 2½	Agriculture IV
Military Drill 2½, 5	Military IX
Military Science 1	Military Science III

SENIOR YEAR.

Forestry III throughout the year.
At the close of the third term all students report for assignment to "Summer Camp" work.

FIRST TERM.

German 5, or	German IV
French 5	French IV
Economics 5	Political Science I
Cryptogamic Botany 5, 7	Botany V
Forest Finance 3	Forestry VII
Elements of Geology 5	Geology I
Military Drill 2½, 5	Military X
Military Science 1	Military Science IV

SECOND TERM.

German 5, or	German V
French 5	French V
Technical; Forest By-products 5, 7	Chemistry XXX
Plant Pathology 5	Botany V
Forest Industries 5	Forestry VIII
Psychology 5	Mental Science I
Military Drill 2½, 5	Military XI
Military Science 1	Military Science V

THIRD TERM.

German 5, or	German VI
French 5	French VI
American Politics 5	Political Science II
Physiology 5, 7	Zoology IV
Forest Economics 2½	Forestry IX
Stock Breeding 4	Agriculture VI
Enginery and Quarrying 4	Mechanical Engineering XVII
Military Drill 2½, 5	Military XI
Military Science 1	Military Science VI

GRADUATE YEAR.

Forestry III throughout the year.

FIRST TERM.

Forest Policy and Protection 5	Forestry XII
Road Construction 5, 9	Civil Engineering VII
Timber Technology 5	Forestry X
Original Investigation 5, 7	Research I
Commercial Law 3	Law I

SECOND TERM.

Technical Reading 5	Language VIII
Highway Construction 5, 9	Civil Engineering VIII
Industries and Commerce 5	History VI
Lumbering 5	Forestry XI
Original Investigation 5, 7	Research II
Civic Actions 1	Law II

THIRD TERM.

Technical Reading 5	Language VII
Veterinary 5	Agriculture IX
Original Investigation 5, 7	Research III
Land Records 3	Business III
Fish and Game 4	Zoology V

DEPARTMENTS OF INSTRUCTION.

MENTAL AND POLITICAL SCIENCE.
AGRICULTURE.
HISTORY AND LATIN.
HOUSEHOLD SCIENCE.
MODERN LANGUAGES.
MECHANICAL AND ELECTRICAL ENGINEERING.
CHEMISTRY AND PHARMACY.
ENGLISH LANGUAGE AND LITERATURE.
MATHEMATICS AND ENGINEERING.
ZOOLOGY.
BOTANY AND FORESTRY.
ELOCUTION.
FLORICULTURE AND GARDENING.
HORTICULTURE.
BACTERIOLOGY.
DRAWING.
MILITARY.
PHYSICAL CULTURE.
MINING.
LITERARY COMMERCE.
MUSIC.

MENTAL AND POLITICAL SCIENCE.

THOMAS M. GATCH, A. M., PH. D.

Course I.—*Economics.*—Senior year; first term. During the first part of the term our aim is to familiarize the student with the principles of the science. The last part of the term is devoted principally to debates, informal discussions and theme work. Our library is well supplied with reference books in this department. Students are encouraged in original investigation. The labor question, socialism, taxation, money and tariff receive attention. Five hours a week. Laughlin, with Lectures.

Course II.—*American Politics.*—Junior year; third term. The construction of various articles and clauses of the Constitution of the United States has led to party differences. The Constitution can be best studied when taken in connection with the history of political parties. The study, thus conducted, approaches the laboratory method, the most practical and satisfactory of all methods, where it can be employed. It is of interest to the whole republic that young citizens should be able to learn that true national party differences have a history and a recognized basis of existence, and should be prevented from following factitious party differences, contrived for personal objects of selfish men. Five hours a week. Johnston's "History of American Politics," wlth lectures.

Course III.—*Psychology.*—Senior year; second term. This study presupposes a considerable acquaintance with the structure and functions of the brain and nervous system. Students acquire this knowledge in the laboratory under the direction of the professor of zoology. The intellectual faculties, the sensibilities and the will are carefully studied; the various schools of philosophy are criticised and compared and themes are often required from members of the class. Five hours a week. Lectures principally, with Buell's "Essentials" as a guide.

AGRICULTURE.

JAMES WITHYCOMBE, M. Agr., Professor of Agriculture.
F. L. KENT, B. Agr., Associate Professor of Agriculture.
W. J. KENT, Foreman.

The object sought throughout the entire agricultural course is to familiarize the student with the art and science of agriculture. This embraces the study of zoology, botany, chemistry and bacteriology, the sciences related to agriculture; and the supplementary studies of mathematics, economics, physics, history, language and other cultural branches, all of which broaden the course of study and tend to elevate the educated farmer to the intellectual level of other professions.

The college laboratories are strictly modern in their appointments and are supplied with the latest equipments, which afford the student unusual opportunities for making a thorough study of all the sciences related to agriculture.

While the theory of agriculture, as based upon the sciences, is taught, the industrial side is not overlooked. Instruction is given in wood and iron work in the carpenter and blacksmith shops under competent supervision. The student is also taught how to handle and care for steam machinery, and is made thoroughly familiar with the mechanism of the farm traction engine.

The instruction given in the class-room is directly supplemented by actual demonstrations of the best agricultural practice on the college farm, thus giving to the student an opportunity to observe the methods employed, and enabling him to note from time to time the results of the practical applications of science to agricultural methods.

The college and station farm consists of 220 acres, 140 of which are devoted to farm crops, pasture, and experimental purposes. The farm is equipped with dairy building, horse-barn, cattle-barn, silos, piggery, tool-house, engine-house, and with typical specimens of several breeds of stock.

Students laboring on the farm and in the gardens, receive from 12½ to 20 cents per hour. Only comparatively few persons can be so employed, as the amount of work to be done is limited. Those only who by their work prove to be valuable laborers will be employed.

DAIRYING.

One of the purposes of the Oregon Agricultural College is to advance the business industries of the state. It is believed that dairying is one of the most important lines of work that can now be undertaken in Oregon. There are large bodies of land in the state which are especially adapted to this industry. For this reason dairying has been introduced as a branch of study in the agricultural course. Modern laboratories have been provided for such instruction and fitted up with all the necessary machinery for carrying on the work in the most approved way. An expert dairyman is in charge of this work.

All students in the agricultural department will be required to study dairying not only as a science but as an art. Those taking the household science course will have the same opportunities as the agricultural students.

This is a line of practical work which, it is believed, will prove of great advantage both to the student and to the state. The practical instruction includes both butter and cheese making.

A short course has been provided, as described elsewhere in the catalogue, whereby practical instruction in dairying may be obtained by those who can not avail themselves of a college course.

The instruction in applied agriculture extends through the freshman, sophomore, junior and senior years, as shown in the following synopsis of courses:

Course I.—*Breeds of Stock.*—Freshman year; third term. The study of the history of the different classes of farm stock, their origin and characteristics. By means of charts, in the class-room the student is made familiar with the different points of animal form preparatory to the use of the score-card system for judging farm animals. This is followed by a practical application of this system in judging dairy cows, beef cattle, mutton sheep and swine. In this manner the student obtains useful information relative to animal form and function, and thus becomes acquainted with the points of excellence in the typical pure bred, as well as the points of merit in the animal designed for the butcher's block. Five hours a week. Brooks' "Agriculture," Vol. III.

Course II.—*Theoretical Dairying.*—Sophomore year; second term. The principles of modern dairy practice will be taught in the classroom. Instruction will be given by textbook and lectures. Five hours a week for one half term.—Snyder's "Dairy Chemistry."

Course III.—*Soils and Manures.*—Sophomore year; second term. The origin and formation of soils; soil tillage; management and application of manures; green manuring; organic and mineral manures; soil exhaustion; rotation of crops, and methods of improving worn-out soils. Five hours a week for one half term. Brooks' "Agriculture," Vol. I.

Course IV.—*Irrigation and Drainage.*—Sophomore year; third term. In the discussion of this subject it will be the aim to deal with those relations of water to soils and to plants which must be grasped in order to permit of a rational practice of applying, removing or conserving soil moisture in crop production. The subject will be considered from the standpoints of the farmer, the fruit grower and the gardener rather than from that of the engineer. The various methods of applying water; the laying out and construction of farm drains; and the effect of irrigation and drainage on the chemical and physical conditions of the soil will be considered. Five hours a week.

Course V.—*Dairying.*—Junior year; first term. (*a*) Practical work in the dairy for agricultural students. The principles taught in the sophomore year will be put into practice in the actual work of the manufacture of butter and cheese. The Babcock test, rennet tests, and curd tests, as well as the subjects of creamery accounting will receive due attention. Five hours a week.

(*b*) Practical work in the dairy for household science students. This work is essentially the same as above. Wing's "Milk and its Products" will also be used as a text during a portion of the term. Five hours a week throughout the third term.

Course VI.—*Stock Feeding and Breeding.*—Senior year; second term. Stock feeding covers the subject of rations for milk and meat production; how best balanced for economical feeding. Stock breeding covers the subjects of atavism, heredity, in-and-in-breeding, variation, prepotency and care of breeding animals. Opportunity is given for judging and scoring live stock, and for studying the essential points of breeds adapted to different purposes. Four hours a week. Shaw, Animal Breeding.

Course VII—*Veterinary Science.*—Senior year; third term. This subject will be taught by lectures covering the anatomy of the horse, and taking up the diseases most common to domestic animals, giving causes, symptoms, and treatment for the same. Special stress is placed upon proper treatment to prevent disease in domestic animals. Five lectures a week. Reynold's "Veterinary Studies."

Course VIII.—*Farm Mechanics.*—Graduate year; first term. The location and arrangement of farm buildings, their cost and construction. The different kinds of fences, their cost, construction, and desirability. The construction, efficiency and durability of various field tools and machinery. Also a study of the principles involved in the operation of gasoline engines, windmills, pumps, feed cutters, grinders and other farm machinery operated by other power than horses.

Course IX.—*Farm Management.*—Graduate year; second term. A study of the different systems of diversified farming; the application of business methods to farm operations; division of the farm into fields, and crop management; executive and commercial problems on large and small farms; the management of farm help; number and character of live stock as affecting the economic management of the farm; relation of farming to other occupations; qualifications and requirements for the farm manager. Five hours a week.

Course X.—*Live Stock Management.*—Graduate year; third term. General management of the various classes of live stock, including a careful study of pedigrees of some leading families of the different breeds; requirements for advanced registration; comparative stock judging in groups, similar to state and county fair work; also comparison of methods of handling live stock in various parts of the state, in various states and foreign countries. Five hours a week.

Instruction is given largely by lectures, suitable books being selected for reference. Miles' book on drainage. Curtis' "Horses, Cattle, Sheep, and Swine." Warfield's "Cattle Breeding," Stewart's "Stock Feeding." Armsby's Manual of Cattle Feeding. Shaw's "Study of Breeds." "Soil," King. "Physics ot Agriculture," King. "Feeds and Feeding," Henry.

HISTORY AND LATIN.

J. B. Horner, A. M., Litt. D., Professor.
Grace Gatch, A. B., Assistant in Latin and History.

HISTORY.

Course I.—*Greek and Roman History.*—Freshman year; first term. Includes the study of general Hellenic development; the Athenian leadership; the Hellenistic or Alexandrian conquests and kingdoms. The political organizations of republican Rome in the prae- and post-Punic periods. Study of the pagan empire; Teutonic migrations. The Christian empire under Roman control. Five hours a week.

Course II.—*Mediæval History.*—Freshman year; second term. A study of social and political institutions of the fifth to the fifteenth centuries. Five hours a week.

Course III.—*History of Eastern Peoples.*—Sophomore year; second term. A survey of the history of China, Japan and India. Religion, arts and general culture of Egypt, Chaldæa, Assyria, Babylonia, Persia. Five hours a week.

Course IV.—*Modern History.*—Sophomore year; third term. This is a study of the era of the reformation and renaissance. (1453-1648). A general study of the age of Louis XIV., Frederick the Great, Anne and the Georges, Maria Theresa, and Peter the Great. The great French revolution and the wars of Napoleon. The states-general of 1789 to the congress of Vienna, 1815. German and Italian freedom and unity. Discussions touching the material progress of the age; famous works of art; foundations, inventions, discoveries, enterprises, improvements and investigations. Five hours a week.

Course A.—*U. S. History.*—A study from the foundations of American History to the Civil War.

Course B.—The Civil War and Reconstruction to the present Administration. Library work is required. Hart's "Essentials in American History."

The college is supplied with maps, charts, and a good working library of historical reference books.

In addition to the individual work of the student, as outlined above, lectures are given on the more important periods, such as the great reformation, thirty years' war, the English reformation, and the French revolution. Textbook, Myers' Ancient History in Courses I and III, Myers' Medæval and Modern History in Courses II and IV.

LATIN.

Course I.—Freshman year; first term. First eighty-five pages of Collar & Daniel's "First Year Latin," also synopsis of regular verb in each of the four conjugations.

Course II.—Freshman year; second term. Same textbook continued to page 151 with frequent reviews; also exercises in composition.

Course III.—Freshman year; third term. Irregular verbs. Conditional sentences. Periphrastic conjugation, etc. Caesar—Book II.

Course IV.—Sophomore year; first term. Caesar—Book I.—Roberts' edition. Allen & Greenough's Latin Grammar.

Course V.—Sophomore year; second term. Cicero's Orations. Allen & Greenough's Grammar.

Course VI.—Sophomore year; third term. Aeneid—Collar's edition. Allen & Greenough's Grammar.

If at any time there is a demand, classes desiring to pursue the study of Latin beyond Course VI may do so upon making application. The first year's instruction is largely grammatical, prominence being given to Latin writing as the best method of acquiring a mastery of the language, Latin composition is eminently helpful in scientific research, and it is suggestive to the student of English. This preliminary work done, the student is then trained to appreciate the literature. Attention is called, during the reading of various authors, to those numerous problems in the history, thought and institutions of the Romans which illustrate similar phenomena noticeable among ourselves. The contribution of the Romans to the language, literature, and institutions of our time is so great that a thorough acquaintance with their life is of the highest educational value.

HOUSEHOLD SCIENCE.

MARGARET C. SNELL, M. D., Professor.
MARY SUTHERLAD, B. S., Assistant in Sewing.

Self interest and public interest make it apparent to every intelligent person how greatly in need are subjects pertaining to the home of being "touched to fine issues;" hence their introduction as studies into college curricula.

We have been reviled as "the most common schooled, and least cultivated, among all civilized nations," and this largely through our deplorable indifference to, and ignorance of, the common facts and necessities of life.

"The home as we find it to-day has scant warrant that anything born of its teaching is worth while to impart, yet the problem grows of how to get better results, how to lessen the labor of the farmer's wife, the washer-woman, the cook, the boarding-house keeper, the city missionary, the school teacher, the woman of fashion."

The solution requires something more than the knitting of the brow over theories; there must be actual testing of these theories by practice in the college laboratory, if they are to have value and permanence. The precious acquisition of the scholar who *knows*, must be further supplemented by that of the artist who *does*.

The various subjects pertaining to home life are taught under the following heads:

Course I.—*General Hygiene.*—Freshman year; first term. Good health is acknowledged as one of the prime factors of success in life; lectures and talks on this important subject are not neglected. The amenities of home, and readings on kindred topics, give mental occupation to the sewing hour. One hour a week.

Courses II, IV, V.—*Sewing*.—Freshman year. During the first term there are sewing lectures and practice work, one hour a day, on sewing samples. Here are acquired and strengthened those invisible impulses: industry, dexterity, patience, exactness. Five hours a week.

Second term, sewing continued. Five hours a week.

During the third term sewing is combined with the making of simple garments. Readings, conversation.

Courses VI, VII, VIII.—*Dressmaking*.—Sophomore year. Cleverness with scissors, tape line, and needle finds in dressmaking, millinery, home furnishing, a large field for the application of art principles to the living, moving canvas of actual life.

Instruction in dressmaking is an important branch of domestic science. Lectures will be given on the following subjects: The methods of manufacturing thread, cloths and other dressmaking material; hygienic principles of dressmaking; study and sketching of drapery; history of costume, etc.

During the first term the work includes draughting and making simple skirts, cutting, fitting and making lined waists from patterns; a study of the texture of goods. Five hours a week.

Throughout the second and third terms instruction is given in draughting and making lined waists, matching stripes and plaids, study of woolen textiles. Five hours a week. Home Sanitation and kindred topics one hour a week.

Courses IX, X, XI.—*Cookery*.—Junior year. The first term's work includes instruction in canning of fruits, one-half term; three lectures; one hour a week practice work in the kitchen laboratory; technological cookery; preparatory work in chemistry of foods. Two hours a week. Laboratory fee, $1.50

The second term—practice in cookery, two hours per week, fee $1.50.

The third term—practice in cookery, two hours per week, fee $1.50

Course III.—*Etiquette.*—Freshman year; second term. Lectures and talks on social forms and usages; the art of entertaining.

Course XII.—*Aesthetics.*—Senior year; first term. Lectures and recitations on the subject of aesthetics. "Aesthetics," Day.

This term is given to the general subject of aesthetics in its relations to the subjective and objective world; the kinds and laws of beauty; class readings from various authors on aesthetics; the application of aesthetic principles to discourse as we find it illustrated in the great master pieces of literature. Five hours a week.

Course XIII.—*Aesthetics.*—Senior year; second term. Application of aesthetic principles to the remaining fine arts, with a study of the best authors on these varied subjects. The three arts receiving especial attention during the coming year will be discourse, architecture and painting. Five hours a week.

Course XIV.—*Domestic Lectures.*—Senior year; third term. The term's work will include lectures on the following subjects: Special hygiene, including parentage, care of children, heredity, etc.; sanitation of the home; home furnishing; emergency lectures; fireside practice, etc. Five hours a week.

Course XIV—Helen Campbell's "Household Economics," and Pomeroy's "Ethics of Marriage." Five hours a week must be given to reading aloud, in class room, the best literature. Lectures will be given on poultry raising and bee keeping.

GERMAN.

GERARD TAILLANDIER.

Opportunity to study German is offered throughout the different courses and is compulsory in the course in pharmacy during the sophomore and junior years. We teach in a large measure by the conversational method, and aim to bring the student so far that he can read with ease and facility, and understand so much of the language as will be most helpful to him in practical life. A knowledge of German is a business possession of undoubted value for any young man, or young woman.

Courses I, II, III.—*Elementary German.*—Collar's Eysenbach—German grammar; First German Reader, Muller and Wenckebach's Glück Auf. Hewett's German Reader.

Courses IV, V and VI.—*Advanced German*; Jagemann's German Syntax, Bronson's Colloquial German, Hewett's German Reader. Selection from Schiller's Dramas, Mosher's Willkommen in Deutschland. Selected prose works of modern writers.

Courses VII and VIII—Scientific German Reader. Works on scientific subjects.

MECHANICAL AND ELECTRICAL ENGINEERING.

GRANT A. COVELL, M. E., Professor.
EARL V. HAWLEY, B. S., Assistant.
M. CLYDE PHILLIPS, B. M. E., Instructor in Ironwork and Drawing.
MARK DOW MCCALLISTER, B. S., Instructor in Woodwork.
WILLIAM MACAULY PORTER, Instructor in Blacksmithing.

Students in this department are allowed to choose either the course in mechanical engineering or the course in electrical engineering. Each course leads to the degree of Bachelor of Science, and the two courses are identical until the beginning of the junior year.

The course in mechanical engineering is intended especially for young men who expect to choose an industrial vocation and for those who are already, or expect to be, connected with some of the manufacturing establishments of the country.

The course in electrical engineering is designed to meet the needs of those who desire to turn their attention towards electrical science, the designing, the installation and the management of electric light and power plants, etc.

The shops are well equipped with tools and machinery from the best makers in the country; the idea being not only to have the shops well supplied with the necessary tools but also to make each shop a model as regards quality of equipment and systematic arrangement.

The uses of the various tools in the shop are taught by a series of exercise pieces which the student is required to make. After completing the exercises, the regular work consists in building and repairing machinery in the machine shop, mending farm implements, and making tools in the blacksmith shop, and other useful articles in the wood shop. So far as possible, all work in the shops is executed from drawings and blue prints, which must be followed accurately.

In the drafting room the student begins with linear drawing and follows a progressive course until he is able to make complete working drawings of whole machines, and finally he is encouraged to produce designs of his own and to make complete drawings and blue prints of them.

The scientific principles involved in machines and mechanical movements are taught in the class-room, as well as the application of mathematics to problems in mechanical engineering. The student is required to solve original problems and to depend upon his own judgment and ingenuity as far as possible.

EQUIPMENT.

The machine shop is equipped with one 24″ x 24″ iron planer, one universal milling machine, one universal tool grinder, one radial drill, one 20″ drill press, one 20″ engine lathe, one 16″ engine lathe, five 14″ engine lathes, one 15″ shaper, one emery grinder, two 10″ speed lathes, twelve bench vises, and numerous small tools, such as hammers, chisels, drills, reamers, taps and dies.

The blacksmith shop contains twenty stationary forges operated by an electric motor fan. Each forge is provided with anvil, hammers and tongs. The shop also contains two vises, a swedge block and a full set of swedges, fullers, and heading tools.

The woodshop contains one 4″ four-sided moulder, one 24″ surface planer, one iron saw table with rip and cut-off saws, one band saw, one jig saw, one 20″ pattern-maker's lathe, one post boring machine, four 12″ wood-turning lathes, and twenty hand benches, each equipped with a set of tools consisting of saws, planes, chisels and other small tools. Power is supplied by a 10 horse power electric motor.

The power house is combined with the heating plant and contains one 54 inch and two 60 inch tubular boilers with pumps, injectors and feed water heater. The electrical equipment consists of two 12½ kilowatt direct current generators and one 30 kilowatt alternator, all driven by a 40 horse power, high speed, automatic engine. The direct current generators operate the motors in the several shops and laboratories, while the alternator furnishes lights for the College buildings and grounds.

The steam, electrical and heating plants of the college furnish opportunity for much valuable experimental work in engineering, such as tests of boilers, engines, dynamos, motors, fans, pumps and injectors. The department is supplied with indicators, gauges, planimeters and other instruments to facilitate this work.

A Riehle testing machine of 50,000 pounds capacity, operated by an independent motor, affords means of testing the strength of metals, woods, stones or brick.

The following is an outline of the work done in the mechanical department:

SHOPWORK.

Courses I, II and III.—*Woodwork.*—Freshman year. A course in woodwork which includes carpentery, joinery and wood-turning, also the care and use of tools. Five hours a week throughout the year.

Courses IV, V and VI.—*Blacksmithing.*—Sophomore year. In this course the student is taught how to make and manage a forge fire; to shape iron by bending, drawing, upsetting and welding, and finally to make and temper cutting tools for the shops. Five hours a week.

Course VII.—*Machine Shop.*—Junior year; first term.

This course is devoted principally to chipping, filing, polishing and hand work. Five hours a week.

Courses VIII and IX.--*Machine Shop.*—Junior year; second and third terms. These include a series of exercise pieces in turning, shaping, milling and drilling which the student is required to make from drawings. Five and four hours a week respectively.

Courses X, XII and XIV—*Woodwork.*—Senior year. These courses are elective and are intended for students who desire to specialize in this branch. Particular attention is given to the care and management of wood-working machines and to pattern-making. Five hours a week throughout the year.

Courses XI, XIII and XV.—*Ironwork.*—Senior year. These are elective courses and follow course IX. The work consists of constructing parts of machines, repair work, and making tools for the shops. Five hours a week throughout the year.

MECHANICAL ENGINEERING.

Courses I, II and III.—*Mechanical Drawing.*—Sophomore year. In these courses the student begins at once to make mechanical drawings of simple objects and finally makes sketches of machines from which working drawings are made. Ten hours, the first term; five hours the second term and three hours the third term.

Course IV.—*Mechanism.*—Junior year; third term. This course treats of the motion of machine parts, and is introductory to the course in machine design. Seven hours a week.

Courses V and VI.—*Descriptive Geometry.*—Junior year; first and second terms. The work in these courses is largely drawing. It involves the solution of problems in projection and intersection of lines, surfaces and solids. Five and three hours a week respectively.

Course VII.—*Steam Engines and Boilers.*—Junior year; third term. A study of the construction, care and operation of steam engines and boilers; recitations and lectures. Four hours a week.

Course IX.—*Thermodynamics.*—Graduate year; first term. Steam and other engines considered as heat engines. Five hours a week.

Courses VIII, XII and XIV.—*Mechanics of Engineering.*—Senior year. A course in applied mechanics. The first two terms are occupied with a discussion of statical and dynamical problems. During the last term the strength of materials is studied with special reference to beams, girders and trusses; also the mechanics of fluids relating to pressure, flow and carrying capacity of pipes and open ditches. Open only to those who have completed Mathematics VIII and IX. Five hours a week throughout the year.

Courses XI and XV.—*Machine Design.*—Graduate year; second and third terms. A course applying the principles brought out in the courses in mechanism and mechanics to the design and construction of machine parts. Numerous practical problems are solved, the data for many of them being taken from machines used in the college, so that the student may compare his results with those used in practice. Considerable draughting is done in connection with this course. Seven hours a week.

Course XX.—*Materials of Engineering.*—Junior year. A study of the materials used in engineering structures. Lectures and recitations upon the manufacture and physical properties of iron, steel, brick and cement, and their adaptability to the purposes of engineering construction. Timber and stone are also discussed with reference to their uses as materials of engineering. Three hours a week.

Course XXI.—*Hydraulic Motors.*—Graduate year; first term. Lectures and recitations on the leading types of turbines and other motors; also including centrifugal pumps. Three hours a week.

Course XXII.—*Internal Combustion Engines.*—Graduate year; second term. Lectures and recitations upon gas, gasoline and oil engines. Three hours a week.

Course XXIII. *Power Plants and Transmission of Power.*—Graduate year; third term. Lectures and recitations on the mechanical engineering of central power plants and power transmission. Three hours a week.

Courses XXIV, XXV and XXVI.—*Experimental Engineering.*—Graduate year. A course in mechanical laboratory work extending through the year.

During the Fall term the work consists in calibrating instruments and testing materials in tension, compression, flexure, torsion and shearing; also testing of oils and lubricants.

During the Winter term the work consists in calorimeter tests for determining the quality of steam, steam boiler tests to determine evaporative efficiency, steam engine tests with indicator and brake to determine horse power and mechanical efficiency; also tests of steam gauges, pumps and injectors.

In the Spring term dynamometer tests will be made to determine the power required to drive different machines under working conditions, as well as tests of fans, blowers and motors. Six hours a week.

PHYSICS.

Courses I and II.—*Elementary Physics.*—Sophomore year; second and third terms. These courses cover the usual topics of mechanics, heat, electricity and magnetism, sound and light. Instruction is given by means of lectures and recitations. Three hours a week.

Courses III and IV.—*Elementary Laboratory Work.*—Sophomore year; second and third terms. These are laboratory courses required in conjunction with courses I and II. Students are required to perform a series of experiments in the laboratory, draw their own conclusions and submit a written report to the instructor. Four hours a week.

Course V.—*Physics.*—Senior year; first term. A laboratory course, which is a continuation of the preceding courses, and deals more especially with experiments in heat, light, sound and electricity. Six hours a week.

ELECTRICAL ENGINEERING.

Courses I, II and III.—*Electricity and Magnetism.*—Junior year; first, second and third terms. Dealing with the general theory of electricity and magnetism and their most common application; such as the telephone, telegraph, electro-plating, electric lighting, etc. Special attention is given to the study of the physical theory, actions and reactions in the armature, magnetic principles, and winding of continuous current dynamos and motors. Considerable time is spent in the calculation of low tension distributing systems. During the last term of laboratory work considerable time will be spent on the calibration and use of ammeters, voltmeters and wattmeters, and in running factory and laboratory tests on direct current dynamos and motors. Seven hours a week first and second terms; three hours a week third term.

Courses IV, V and VI.—(a) *Alternating currents.*—Senior year; first term. Being a brief development of the elementary theory of alternating currents, using both the graphical and analytical methods of calculation. A continuation of courses I, II and III. Open only to those who have completed Mathematics VIII and IX. Lectures and recitations. Three hours a week.

(b) *Dynamo Design.*—Second term.—Theory and practice of the design of direct and alternating current dynamos and motors, including calculation and construction of field magnets, armatures, commutators, etc. Lectures and recitations, supplemented by the making of models in the laboratory. Three hours a week.

(c) *Practical Electrical Engineering.*—Third term.—Considerable time will be devoted to practical engineering problems, such as the calculation of circuits, installation of lighting and power plants, power transmissions, etc. Three hours a week.

(d) *Laboratory.*—Systematic tests on alternators, synchronous motors, rotaries, transformers, and induction motors. Laboratory and factory methods of taking and recording results. Four hours a week throughout the year.

Courses VII, VIII and IX.—*Advanced Alternating Current Theory.*—Dealing with the theory of alternating current dynamos, motors, transformers, polyphase systems, long-distance line problems, etc. Courses I, II, III, IV, V, VI prerequisite. Seven hours a week throughout the year.

TEXT BOOKS.

BOOKS.	AUTHOR.	PUBLISHER.
Physical Laboratory Manual	Chute	D. C. Heath
High School Physics	Carhart & Chute	Allyn & Bacon
Technical Mechanics	E. R. Maurer	Wiley & Son
The Strength of Materials	Slocum & Hancock	Ginn & Co.
Descriptive Geometry	Ferris	Americ'n Book Co.
Machine Design, Part I	Jones	Wiley & Son
Electricity and Magnetism	Sylvanus Thompson	MacMillan
Dynamo Electric Machinery	Sheldon,	
Alternating Current Machines	Sheldon & Mason	Van Nostrand Co.
Elements of Electrical Engineering	Steinmetz	McGraw Pub. Co.

CHEMISTRY AND PHARMACY.

A. L. KNISELY, M. S., Professor.
JOHN FULTON, B. S., Associate Professor.
C. M. MCKELLIPS, PH. G., PH. C., Assistant Professor.
FRANK E. EDWARDS, B. M. E., Instructor.

EQUIPMENT.

The Department of Chemistry occupies the entire south wing of Agricultural Hall. The various laboratories, lecture and recitation rooms are equipped for thorough, accurate work.

On the first floor are located the storeroom for chemicals and apparatus, and the laboratory for general and qualitative chemistry. This laboratory is supplied with gas, water and sinks to accommodate 100 students. A series of hoods extend along one side of the laboratory so as to keep the air in the room free from noxious gases and fumes.

The laboratory for careful quantitative analysis is located on the second floor. This laboratory is completely equipped for the work intended. A chemical library and balance room joins this laboratory. The chemical department of the college is equipped with two torsion balances, two high grade assay balances and four analytical balances.

On the third floor is located the lecture and recitation room for general chemistry; this room is provided with raised seats and has a seating capacity for 150 students. The lecture table in this room is supplied with gas, water and electric wires of sufficient size for a stereopticon or electric furnace. On this floor are also two small recitation rooms, each capable of accommodating 20 to 25 students.

A dark room is available whenever work is being carried on with the polariscope or spectroscope.

One room on the third floor is available when the subject of gas analysis is being studied.

All recitation and lecture rooms are supplied with desks, gas and water so that at all times the instructor in charge can fully illustrate the subject under consideration.

CHEMISTRY.

The study of chemistry is begun in the first term of the sophomore year. Prerequisite, Freshman mathematics.

Course I.—*General Inorganic Chemistry.*—Non-metals.—Sophomore year; first term. A daily exercise throughout the first term is devoted to recitations, lectures and laboratory practice. In this course special attention is given to the fundamental principles of the science, which are suitably illustrated either by experiments performed by the student in the laboratory, or, when too intricate and expensive of time, by the instructor before the class in the lecture room. The elements are discussed individually as well as their more important compounds.

The *practicum* of this course consists of a series of laboratory exercises dealing with the elements studied and is designed to introduce the student to chemical manipulation. Seven hours a week.

Course II.—*General Inorganic Chemistry.*—Sophomore year; second term. The study of the metals is entered upon in the second term and is conducted similarly to the study of the non-metals. The more important metals are individually discussed under the following heads: history, occurrence in nature, properties, preparation, uses, tests, and compounds. Special attention is given to metals and their compounds which are of industrial importance.

The laboratory work of the second term consists of a study of the properties of the metals, being an introduction to qualitative analysis. This course must be preceded by Chemistry I. Seven hours a week.

Course XXV.—*Stoichiometry.*—A course in chemical arithmetic designed for students who take analytical chemistry. This course is given at irregular intervals.

Course IV.—*Agricultural Chemistry.*—Junior year; first term. This course deals with the more intimate relation of the science to agriculture. Such topics as soil composition, elements essential to plant growth, soil exhaustion, fertilizers; chemistry of cattle foods, nutrition, dairy products and food adulteration are dealt with as fully as time permits. Prerequisites, Chemistry I, II and III. Seven hours a week.

Course XXI.—*Agricultural Chemistry.*—Junior year; second term. This is a continuation of course IV and extends through the second term. Seven hours a week.

Course V—*Elementary Quantitative Analysis.*—Junior year; third term. The student is required to make the ordinary fundamental determinations of moisture, aluminum, calcium, magnesium, copper, lead, potash, sulfuric acid, phosphoric acid, chlorine, and carbonic acid by gravimetric processes; estimations by volumetric methods including alkalimetry, acidimetry, precipitation, and oxidation will be undertaken. The work is so planned as to familiarize the student with the standard gravimetric and volumetric methods. This is a required course for all pharmacy students and is elective for students who have completed chemistry I, II and XV. Ten hours a week.

Courses VI, VII, VIII.—*Advanced Quantitative Analysis.*—Senior year; first, second and third terms. A continua-

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tion of course V. This work extends throughout the senior year and is arranged especially for students electing theses in the department of chemistry. Elective. Ten hours a week.

Course IX.—*Technical Analysis.*—Arranged for fifth year students, This course extends throughout the year, and consists of such subjects as gas analysis, iron and steel analysis; also the chemistry of manufacturing processes.

Prerequisites VI, VII, VIII.—Fifteen hours a week.

Course X.—*Technical Chemistry.*—Arranged for students in forestry. Consists of chemistry of various woods. Products of the destructive distillation of wood and kindred topics.

Prerequisite Course V. Ten hours a week.

Course XI.—*Chemistry of Common Life.*—Sophomore year; third term. This is a course treating of organic compounds of common life. This work is required of all students in household science course. Prerequisites chemistry I, II. Seven hours a week.

Courses XII, XIII and XIV.—*Chemistry of Foods.*—Senior year. An elective extending through the senior year in the household science course. It is an expansion of the work in course XI, but limited to a study of foods from a chemical and scientific standpoint. This work must be preceded by chemistry V. Seven hours a week.

Course XV.—*Qualitative Analysis.*—Sophomore year; third term. This course is designed for students in pharmacy, mining and agriculture. It gives practice in the analysis of unknown mixtures and chemical compounds for bases. Prerequisites chemistry I, II. Ten hours a week.

Course XVI.—*Qualitative Analysis.*—Junior year; Fall term. A continuation of course XV, consisting of analysis of unknown mixtures and chemical compounds for acids and bases. Ten hours a week.

Course XVII.—*Organic Chemistry.*—Junior year; second term. This subject is designed for students of the pharmacy course. Prerequisites I, II, XV, XVI. Seven hours a week.

Courses XVIII, XIX, XX.—*Pharmaceutical Analysis.*—Senior year; first, second and third terms. This work consists of advanced qualitative and quantitative analysis, both organic and inorganic. Under this head are taken up the separation, identification and determination of the active constituents of alkaloidal drugs and galenical preparations. During the spring term practical laboratory work in Toxicology is given. Ten hours a week.

Course XXII.—*Soil Physics.*—Senior year; third term. The work will include a study of various types of soils as to their mechanical structure and analysis; of conditions influencing temperature, capillary action and water-holding capacity of soil; effects of drainage and cultivation upon the conservation of moisture in soils; the texture of soils; the use of fertilizers and amendments and their effects on soils. Class room and laboratory work, seven hours a week.

THESES.

Undergraduates desiring to elect theses in the department of chemistry and pharmacy must have passed in one course of quantitative analysis.

GRADUATE ELECTIVES.

Elective work in chemistry is offered as a major or a minor subject for two years to candidates for the degree of Master of Science.

Advanced Analysis.—This course is intended for those who may desire to specialize in chemical work. It provides a greater variety of analytical work than can be given in courses V, VI, VII, VIII. It offers the following: analysis of limestone, coal, iron ores, milk, butter, cheese, water, urine, sugar, and various other materials. A student desiring to investigate along any particular line, as mineral, sanitary, or agricultural chemistry, may do so. This course is open as a major subject to students who have completed courses I, II, III or XV and V, VI, VII and VIII. In addition, a parallel course of reading must be taken, upon which the student will be required to pass a satisfactory examination at the end of the year. The work of the last year will be left largely to the student's choice, subject to the approval of the head of the department, and will serve as the basis for a graduation thesis. Hours to be arranged with the instructor.

PHARMACY.

In addition to the ordinary equipment in constant use in the pharmaceutical laboratory—mortars, percolators, evaporation dishes, graduates, beakers, pilltiles, spatulas, etc., the department is supplied with suppository moulds, compressors, drug mills, tablet triturate moulds, cachet and soft capsule filling and sealing apparatus, pill machine, pharmaceutical stills, etc.

Courses I and III.—*Pharmacognosy.*—Junior year; second and third terms. In these courses are considered both the gross structure and characteristics of the crude drugs and chemicals. The student is taught the appearance, taste, color, odor, fracture and habitat of the various crude drugs, and also receives careful drill on their Latin and English names. Special attention is directed toward the learning of the scientific classification of the vegetable drugs. The student has access to the specimens for study, and special effort is made to train the senses to the recognition of each of the drugs considered.

The pharmacognosy of the senior year consists in a thorough review of the work of the junior year and practice in the recognition of powders, liquids, chemicals, and pharmaceutical preparations. Two hours a week, Spring term.

Courses II, IV and VII.—*Pharmacy.*—Junior year. By means of a series of lectures and recitations during the first term, the student is made familiar with the nature and objects of the practice of pharmacy, as well as with the scientific principles underlying it. His attention is directed particularly to the various classes of Pharmacopœial preparations, beginning with those of the more simple character and gradually advancing until a thorough understanding is acquired concerning those of the most complex formulae.

Definitions are introduced wherever admissible, being supplemented by descriptive and theoretical considerations when necessary for a better understanding of the subject.

The work of the second and third terms is devoted largely to laboratory practice, during which time the student has ample opportunity for the practical application of the knowledge gained in the lecture room, and in the acquirement of pharmaceutical technique.

The preparations of the Pharmacopœia receive special attention, each student being required to make, independently, a sufficient number of these preparations to insure a thorough understanding of the processes and manipulations involved in their manufacture. Various unofficial preparations are also considered from time to time, especially those of the National Formulary.

The laboratory work is under the direct supervision of an experienced pharmacist and each student receives personal attention. The character of the instruction is such as will be of much practical benefit to the student in the subsequent event of his becoming a dispensing pharmacist. Two hours a week, first term, and five during second and third.

Course V.—*Therapeutics and Doses.*—Junior year; first term. The therapeutical uses of medicines serve as a basis for classifying them in a manner which will facilitate study. The definitions of medical terms are given special attention in the junior year. In this connection the student also learns the minimum and maximum doses of all remedial agents in active use in the modern practice of medicine. Two hours a week.

Course VI.—*Nomenclature.*—Junior year. In this connection the student is shown the practical application and use of the Latin language in the professions of medicine and pharmacy.

The Latin titles of the Pharmacopœia, National Formulary and the more common terms that occur in the prescription are made the subject of a series of recitations. One hour a week, first term.

Courses VIII and XIV.—*Materia Medica and Therapeutics.*—Senior year; first and second terms. All substances which find use in medicine are here studied one by one as to source, Latin and English names, formulae (in the case of chemicals), compounds and preparations, properties, method of preservation, industrial and domestic use, impurities and adulterations, antidote (in case of poisons) and dose.

In the consideration of crude organic drugs, attention is especially directed to the constituents responsible for the medicinal activity of the drug, e. g., alkaloids, glucosides, volatile oils, etc. Three hours a week.

Course IX.—*Operative Pharmacy.*—Senior year; first term. This course is a continuation of that of the junior year and includes such preparations of the Pharmacopœia and of the newer classes of remedies as were not considered in the junior year. Attention is given to the manufacture of the more difficult preparations, both galenical and toilet, and to the correct methods of manipulation involved in preparing medicines for dispensing in cachets, soft capsules, etc.

The composition of the more important Pharmacopœial preparations, and of the percentage strength of the active constituents of each, are made the subject of close study. The work of the term ends with a final review of the entire subject of pharmacy. Six hours a week.

Courses X and XV.—*Prescription Practice.*—Senior year. The recitation work consists of reading, interpreting, criticising prescriptions and calculating doses. During the third term a series of general quiz recitations is held. This is preparatory to the State Board examination. Special attention is given to incompatibilities and to the solubility of chemicals. Unsightly, dangerous and explosive mixtures are also considered under this head. In this laboratory course and that of operative pharmacy the student gains experience for the prescription counter, learning the difficulties there met with and how best to overcome them. He also gains in manipulative skill in making extemporaneous preparations.

Each student is required to personally perform the operations under the direct supervision of the instructor. The student works not from book prescriptions, but from prescriptions written in the ordinary practice of physicians and found on file in the drug stores. Seven hours a week second term and eight hours a week third term.

Course XI.—*Pharmacognosy and Synonyms.*—Senior year; third term. The pharmacognosy of the senior year consists in a thorough review of the work of the junior year and practice in the recognition of powders, liquids, chemicals, and pharmaceutical preparations.

In addition to the knowledge of the scientific classifications of the medicines already considered up to this time, the student is further instructed regarding many "common names," or synonyms, in general use in the ordinary practice of pharmacy. Three hours a week.

Course XIII.—*Toxicology.*—Senior year; third term. The important active poisons—both mineral and vegetable—are studied. Their physiological action, characteristic symptoms that follow their use, treatment and antidote are noted and commented upon. Attention is directed to the conditions and regulations provided by the Oregon Pharmacy law for the handling and sale of poisons within the state. One hour a week.

From time to time special lectures are given on hygiene, pharmaceutical jurisprudence, etc.

STATE EXAMINATION AND REGISTRATION.

An item in the revised pharmacy law of this State, as enacted by the Oregon Legislature in its 1907 session, stipulates that a candidate for registration as assistant pharmacist, within the meaning of this law, must have had, previous to his taking the examination at the hands of the State Board of Pharmacy, three years of practical experience in a store where prescriptions and medicines are dispensed. The candidate for examination as a fully registered licentiate of pharmacy must have had four years of such experience.

The Oregon Board of Pharmacy, by special resolution, has agreed to accept time spent in the study of pharmacy at this college as the equivalent of that spent in the store, subject to the following provision: The student who completes the regular four years course and has one year of drug store experience to his credit, is eligible to take the senior examination, and he who completes the two years course and has one year of store experience to his credit, is eligible to take the junior examination at the hands of the State Board of Pharmacy.

The training in the pharmaceutical course is largely conducted in the laboratory for it is only by this means that the student can form an intimate personal acquaintance with the material and the best methods of manipulation. Thus it is that he receives systematic practice in dispensing, in the examination of drugs as to identity, purity, and strength, and in the manufacture of various preparations from crude drugs. The requirements of the U. S. Pharmacopœia are always kept in mind, and the student is always held strictly responsible for the purity of his preparations and the accuracy of his work. The course aims to teach students facts and principles of immediate use in the drug store, adapting the work to the needs of the practical pharmacist and manufacturing chemist. It is, however, further recognized that a thorough foundation must be laid for this work, and in view of this, two years of preparatory work are required in the college, or its equivalent in some other school. Students who have had equivalent work elsewhere can complete the course in pharmacy in two years.

EXPENSES IN CHEMISTRY AND PHARMACY.

Tuition is free at this institution, but to cover the cost of material used and wasted in the laboratories a small laboratory fee and a deposit for breakage will be charged in the chemical and pharmaceutical laboratories as is the custom in all institutions. These fees are payable each term strictly in advance.

Chemical laboratory: Courses I, II, III.

Material	$2.00
Deposit for breakage	1.00

Qualitative Analysis XV or Quantitative Analysis:

Material	$3.00
Deposit for breakage	2.00

Pharmaceutical Laboratory, per term:

Material	$3.00
Deposit for breakage	2.00

Laboratory work accompanying theses, per term:

Material	$3.00
Deposit for breakage	2.00

Text and reference books in chemistry: General Chemistry, Bradbury, Newell, Smith; Qualitative Analysis, Johnson and Prescott, Dennis and Whittlesey; Quantitative Analysis, Talbot, Smith and Cheever; Agricultural Chemistry, Johnson; Organic Chemistry, Remsen; Roscoe and Schorlemmer, Watt's Dictionary of Chemistry, Thorpe's Dictionary of Applied Chemistry, Thorpe's Industrial Chemistry, Wiley's Principles of Agricultural Chemistry; Fresenius, Crooke's Select Methods, Sutton's Volumetric Analysis, Stillman Engineering Chemistry; Technology of Paint and Varnish, Sabin; Chemistry of Manufacturing Processes, Blount and Bloxam; Food Inspection and Analysis, Leach; Microscopy of Vegetable Foods, Winton; Official Methods, etc.

Text and reference books in pharmacy and materia medica: Treaties on Pharmacy, Caspari; Practice of Pharmacy, Remington; Quantitative Analysis, Sturmer and Vanderkleed; Organic Analysis, Prescott; The Art of Compounding, Scoville; Hare's Therapeutics; Medical Chemistry, Bartley; Materia Medica, Culbreth; Morris, Hatcher and Sollmann, White and Wilcox; Sturmer's Pharmaceutical Arithmetic; U. S. Dispensatory; National Dispensatory; King's Dispensatory; U. S. Pharmacopœia; same, of Homœopathy; National Formulary; Medical Dictionary, Dorland; Pharmacognosy, Jelliff. Numerous other books and trade journals are to be found in the college library and are accessible to students.

NOTE.—Students from other institutions will be given advanced credit as follows:

Bradbury General Chemistry, or its equivalent	Two terms
Williams General Chemistry, or its equivalent	One term
Dennis and Whittlesey Qualitative, or its equivalent	Two terms

ENGLISH LANGUAGE AND LITERATURE.

F. BERCHTOLD, A. M., Professor.
IDA B. CALLAHAN, B. S., Assistant Professor.
HARRY BEARD, B. S., Instructor.
L. B. BALDWIN, A. M., Instructor.

English as a required study is found extending in most of our courses to, and including part of, the junior year. It is offered as an elective in two terms of the junior year, and in the senior year.

Courses S., B., F.—The course in preparatory English is designed to secure accuracy and freedom in expression. There is work in spelling, writing and simple grammatical constructions. Written exercises prepared under rules of form are constantly required, to obtain practice and secure confidence in expression. Whitney and Lockwood's English Grammar. ''Kimball's Business Speller," "Elementary English Composition," "Practical Exercises in English," Huber G. Buehler. "Higher English", Reed and Kellogg.

It is well understood that the art of using one's native tongue correctly and forcibly is acquired for the most part through imitation and practice, and is not so much a matter of knowledge as of habit. To become familiar with good use, we must read the best literature; a student familiar with the best language of reputable writers and speakers will use good English without conscious effort. Indeed, good reading is indispensable to good speaking or writing; and rules and dictionaries are of little benefit without it.

Throughout the courses, therefore, there is required an amount of collateral reading equivalent to two books per term, or six per scholastic year. The student prepares condensive abstracts of these books, and supplements this work by selecting and memorizing from each book six short quotations embodying general truths.

The books to be read and studied in the subfreshman year are: Defoe's "Robinson Crusoe;" Bunyan's "Pilgrim's Progress;" Hughes' "Tom Brown's School Days;" Edward Everett Hale's "The Man Without a Country;" Whittier's "Snow Bound;" Jack Condon's "The Call of the Wild".

Courses I, II, III.—*Composition and Rhetoric.*—Freshman year; first, second and third terms. Review of English grammar; review of punctuation. Daily practice in spelling. Description; narration. Collection of material for a theme. The study of words, the sentence, the paragraph. Figures of speech. The burden of these courses is description and narration. Extracts from classic literature are read and analyzed in class. Written reports are handed in, giving distinctive features in the description or method of movement in the narration. Short descriptions and narrations are written on demand in the class under limit. There are also constant recitations and exercises under grammatical rules and constructions to secure order and accuracy. The work, here as well as in all other courses in English, is done with a view to the increase of the student's vocabulary, and to develop ease and exactness of expression in his compositions. Brooks and Hubbard's "Composition—Rhetoric." Collateral reading. Books to be read and studied in the freshman year:

"The Sketch Book," Washington Irving.
"Sir Roger De Coverley," Joseph Addison.
"Silas Marner," George Eliot.
"The Merchant of Venice," William Shakespeare.
"Julius Cæsar," William Shakespeare.
"As You Like It," William Shakespeare.

Courses IV, V.—*Rhetoric.*—Sophomore year; first and second terms. This course is carried on co-ordinately with Baldwin's College Manual of Rhetoric. It emphasizes Criticism, Exposition and Argument.

A number of formal papers are required during the year. The subjects are assigned and the methods follow principles laid down by Baldwin, and Lockwood. Much attention is given to definition of terms and to making clear expositions of ideas contained in paper.

By way of review, many short exercises are also written under the simple fundamentals of composition and in study of sentence and paragraph structure. Collateral reading.

Course VI.—*English Literature.*—Sophomore year; third term. The long course of English literature necessitates the division of it into a number of periods marked by the presence of new and weighty influences. In each period there are a few writers that stand, by reason of their ability and enduring work, in positions of recognized preeminence. We aim to extend the study of the works of such writers—our classic authors—sufficiently far to include considerable fulness of biographical and critical detail.

Formative Period.—Chaucer, "Canterbury Tales:" Prologue and Knight's Tale.

First Creative Period.—Spencer, "Faerie Queene." Cantos I and II. Bacon, Essays. Shakespeare, "Hamlet," "King Lear," "Macbeth." Collateral reading.

Courses VII and VIII.—*English Literature.*—Junior year; first and second terms. Civil War Period: Of Milton's minor poems: "L'Allegro" and "Il Penseroso." The Restoration: Dryden, selections. Queen Anne Period: Addison. Pope, selections. Age of Johnson: Burns, selections. Goldsmith, "The Deserted Village." The Nineteenth Century: Scott, Byron, Wordsworth, Tennyson. Selections from each. Collateral reading.

Courses IX and X.—*American Literature.*—Junior year; third term, and senior year, first term. A study of the leading periods and principal writers of American literature, with particular emphasis of what is usually termed the First National Period, representing such authors as Irving, Cooper, Bryant, Poe, Emerson, Hawthorne, Longfellow, Lowell, Whittier and Holmes. Collateral reading as in other courses in English.

Courses XI and XII.—*Elective Courses in English Literature.*—Senior year; second and third terms. A critical study of three or four representative plays of Shakespeare and selections from Macaulay, Carlyle, Rusking, Wordsworth, Tennyson and Browning. Papers on assigned topics and reports upon collateral reading are required throughout the courses.

MATHEMATICS, CIVIL AND MINING ENGINEERING

GORDON V. SKELTON, C. E., Professor.
CHARLES L. JOHNSON, B. S., Assistant Professor.
NICHOLAS TARTAR, Instructor.
HARRY BEARD, B. S., Instructor.

MATHEMATICS.

The course in Mathematics includes such of its branches as the distinctive aims of this institution require, and conforms itself, in general, to that in use in the most successful agricultural colleges.

That the study may to the fullest extent strengthen and discipline the mind for connected, logical thought, thoroughness and accuracy are insisted upon at all times. In the class-room all principles and demonstrations must be presented in an orderly and logical manner. The constant aim is to cultivate the powers of insight, judgment, and originality.

Course I—*Algebra.*—Freshman year; first term. From quadratic equations on. This course is open to students who have completed the sub-freshman work and to new students who can satisfy the department that they are prepared for the work. A review of about ten days will be devoted to the topics that precede quadratic equations. Five hours a week.

Course II—*University Algebra.*—Sophomore year; second term. From ratio and proportion to theory of numbers. This course is open to all students who have successfully passed course I. Five hours a week.

Course III—*University Algebra.*—Sophomore year; third term. Form the theory of numbers on. This course is open

to students who have had courses I and II or their equivalent. Five hours a week.

Course IV—*Plane Geometry*—Freshman year; second term. This course includes all that is found in the first four books of plane geometry in any standard text, as Wentworth's. Special emphasis is laid upon definitions and principles. Original demonstrations are given and much time is devoted to "original" theorems and problems and at all times proofs and demonstrations are freely criticised and discussed in the class-room. Five hours a week.

Course V—*Plane, Solid and Spherical Geometry.*—Freshman year; third term. This course includes book V of plane geometry and all of solid and spherical geometry. Students must have had course IV before taking this. Five hours a week.

Course VI—*Trigonometry.*—Sophomore year; first term. Students must have had courses I, IV and V before taking this. Only enough time is given to spherical trigonometry to enable the student to solve the spherical triangle. Much time is devoted to practical triangulation and measurements. The department is supplied with all the necessary instruments which the students use under the direction of the instructor. Five hours a week.

Course VII—*Plane Analytical Geometry.*—Junior year; first term. This work is required of all students taking the mechanical, electrical, mining and civil engineering courses. The work embraces the subjects treated in Ashton's Analytic Geometry. Five hours a week.

Course VIII—*Differential Calculus.*—Junior year; second term. This course is required of the same students as is course VII. Among the topics considered are differentiation and applications, evaluation of indeterminate forms, ex-

pansion of functions, Taylor's and Maclaurin's theorems, maxima and minima, points of inflection, curvature, change of independent variable, functions of two or more variables, asymptotes, curve tracing, etc. Five hours a week.

Course IX—*Integral Calculus.*—Junior year; third term. Among the topics considered are direct integration, definite integrals and applications, integration of rational fractions, integration by rationalization, integration by parts, integration of trigonometric forms, etc.; applications to finding the lengths and areas of curves, surfaces and volumes of solids of revolution, etc.; double and triple integration and applications. In this course, as in course VIII, great stress is laid upon practical applications, and a large number of practical problems are solved. Five hours a week.

Course XI.—*Astronomy.*—Senior year; third term. That this most elevating and refining subject may be open to a greater number of students, it will be confined to descriptive astronomy and may be taken by students who have completed courses I to V, inclusive. Much time will be devoted to uranography. Five hours a week.

CIVIL AND MINING ENGINEERING.

Course I.—*Plane Surveying.*—Sophomore year; second term. This course includes recitations, lectures, field and office work in the theory and practice of plane surveying. Proper emphasis will be given to chain and tape surveying. The theory and construction of the different surveying instruments are studied and practice will be given in making their tests and adjustments. The United States public land surveys and land laws are studied. Form of field notes, method of balancing and plotting surveys, computing area, etc., will have due consideration. Students must have had

Courses in Mathematics from I to VI, inclusive, and Mech. Eng. I, II and III, before taking this course. Three recitations and four hours office and field practice per week.

Course II.—*Plane Surveying.*—Sophomore year; third term. This course is a continuation of Course I, except that nearly the entire time will be spent in field practice making surveys, relocating lost corners, making surveys from given descriptions, subdividing land, city work, etc. Students must have had Course I before taking this. Ten hours per week.

Course III.—*Topographical Surveying.*—Junior year; first term. This course will include the execution of a complete topographical survey of a selected tract, including the office work such as the calculations, checks, platting and finishing the map. Prerequisites Courses I and II. Six hours per week; mainly field and office.

Course IV.—*Plane Surveying.*—Spring term; Junior year. This course is a condensation of Courses I and II and is designed for students pursuing the Agricultural course and for those of the Mechanical and Electrical courses who desire to elect it. The greater part of the time is spent by the student in the field with the various instruments. He is required to make surveys from descriptions given him as well as to write descriptions from surveys made by himself. In all cases notes must be carefully kept and worked up in the office.

Course V.—*Railroads.*—Junior year; second term. The theory of curves including the transition curve, earthwork computations, economic location, maintenance, etc. Three recitations and four hours office and field practice.

Course VI.—*Railroads.*—Junior year; third term. This course is a continuation of Course V and must be preceded by it. During this term the reconnaissance and location of a line several miles in length will be made and maps and profiles constructed and estimates, etc. formed. The field work will be arranged as far as possible for Saturdays. Two hours recitation and six hours field and office.

Course VII.—*Highway Construction.*—Senior year; fall term. This course includes a consideration of the elementary principles of location, construction and maintenance of roads including a consideration of the materials used in road and street building. Three hours recitation and four hours office and field.

Course VIII.—*Highway Construction.*—Senior year; winter term. Continuation of Course VI. This course will include the surveys, location, estimates of cost and preparation of plans, specifications and contract for a section of road involving the usual engineering difficulties. One hour recitation and eight hours office and field.

Course IX.—*Masonry Construction and Foundations.*—Senior year; third term. This course includes a consideration of stone, brick, lime and cement, and estimates and specifications for their use, also the theory of the arch, retaining walls and foundations of various classes. This course must be preceded by courses VIII and XII in mechanics and must be preceded by or accompany course XIV in mechanics. Five hours a week.

Course X. — *Agricultural Engineering*. — Senior year; third term. This course is open to students who have completed course IV. Instruction will be given in designing, locating and constructing agricultural drainage systems; laying out farm buildings, etc. Five hours per week.

Course XI.—*Roofs and Bridges.*—Graduate year; Fall term. Both analytical and graphical methods will be applied to the determination of stresses in roof trusses under static and wind loads and in bridges under static and moving, concentrated and distributed load. Three hours recitations and four hours drawing and computing room.

Course XII.—*Roofs and Bridges.*—Graduate year; Winter term. This is a continuation of course X and will take up design of such structures. Courses X and XI must be preceded by Mechanical Engineering V, VI, VIII, XII and XIV. One hour recitation and six hours drawing and computing room.

Course XV.—*Mining Engineering.*—Senior year; third term. The subjects treated embrace preparatory and exploratory work, methods of mining, hoisting machinery, hoisting operations and conveyances, steam, water and electric power, underground traffic, pumping, ventilation, illumination, etc. Five hours a week.

Course XVI.—*Sanitary Engineering.*—Graduate year; Winter term. Drainage systems for populous districts including chemical and bacteriological purification of sewage, collection and destruction of garbage, street cleaning, etc. Prerequisites, courses I, II, III and VIII civil engineering, hydraulics and mechanical drawing. Two recitations and lectures and four hours computing and drawing room per week.

Course XVII. — *Water Supply Engineering.*—Graduate year; Spring term. Water supply for municipal and irrigation purposes, storage, purification, distribution and management of plant will be considered. Two hours recitation and six hours computing and drawing room. Prerequisites same as course XVI.

Course XVIII.—*Engineering Contracts and Specifications.*—Graduate year; Spring term. The general principals governing engineering contracts and specifications including preparation, careful criticism and study of several specifications and contracts in connection with courses V to XVIII. Two hours recitation and lectures per week.

TEXT BOOKS.

The New Business Arithmetic—Powers & Lyon.

Algebra—Essentials of Algebra; Wells.

Advanced Algebra—Hawkes.

Geometry—Plane and Solid Geometry (Revised Edition), Wentworth; Plane and Solid Geometry, Shutts.

Trigonometry—Plane and Spherical Trigonometry; Ashton & Marsh.

Analytic Geometry—Plane and Solid Analytic Geometry; Ashton.

Astronomy—Elementary Astronomy; Young.

Surveying—Johnson, Pence & Ketchum, Merriman & Brooks, Barton.

Railroads—Searles, Webb.

Mining Engineering—A Manual of Mining; Ihlseng.

Roofs and Bridges—Merriman & Jacoby.

Sanitary Engineering—Folwell.

Water Supply Engineering—Folwell.

Contracts and Specifications—Johnson.

Masonry Construction and Foundations—Baker, Patton.

Highway Construction—Byrne.

ZOOLOGY.

A. B. CORDLEY, M. S., Professor.
J. C. BRIDWELL, B. S., Assistant.

The work in this department is designed to give the student that knowledge of biological laws which is to-day regarded as an essential part of a liberal education. It aims to create a growing interest in the study of our native birds, insects and other animals and their interrelations with one another, with native and cultivated plants and with rural life; to give a knowledge of the foundation facts of morphology and physiology on which depend many of the principles of scientific stock breeding and feeding, of veterinary science and of human physiology and hygiene; and above all from an educational standpoint, it aims to train the student's perceptive faculties, to teach him to see, and to do and to reason from observed facts.

The laboratories of the department occupy six rooms on the third floor of the agricultural building. They are well supplied with necessary apparatus including compound and dissecting microscopes, camera lucidas, eyepiece and stage micrometers, automatic microtomes, dissecting sets, dry and steam sterilizers, incubators, reagent sets and numerous smaller articles, all of which are for the use of students.

For the purpose of illustration there are in addition to the general museum and the entomological collection a set of the celebrated Leuchart zoological charts, enlarged dissectable models of the human ear, eye, heart, brain and larynx and a large series of microscopic mounts.

The general museum, which occupies the main part of the fourth floor of the agricultural building, also contains a small but typical collection of mounted mammal skins; a splendid collection of mounted native birds; a collection of bird skins from Alaska; a collection of more than one hundred species of eggs of native birds; a small collection of fishes and reptiles; a considerable number of marine invertebrates, including a small but beautiful collection of Philippine shells; a small but interesting collection of skulls and disarticulated and articulated skeletons; and the largest collection of Oregon insects in existence.

Course I.—*Invertebrate Zoology*.—Sophomore year; third term. A course devoted principally to the morphology, physiology and ecology of invertebrates. Particular attention is given to the study of the single celled forms since it is believed that the student can thus best gain an insight into the structure and physiological activities of the higher animals. Some of the types studied are the amœba, paramœcium, vorticella, sponge, hydra, starfish, crawfish, earthworm, mussel and grasshopper. Required in the agricultural, household science and pharmacy courses. Seven hours a week. Laboratory deposit, $3.00.

Course II.—*Entomology*.—Junior year; first term. A study of the structure, classification and habits of insects, with particular reference to those which are beneficial or injurious. Instruction is given in methods of collecting and mounting insects and in studying their life-histories and in the preparation and use of insecticides. Required in the agricultural, household science and literary commerce courses. Prerequisite, course I. Seven hours a week. Laboratory deposit, $1.00.

Course III.—*Vertebrate Zoology*.—Junior year; second

term. A course devoted principally to the morphology and physiology of vertebrates. A careful comparative study is made by dissections of several vertebrate types, particular attention being given to the Guinea pig as a type of the mammalia. The relation of function to structure is kept constantly in mind throughout the course which thereby becomes valuable as an introduction to the study of human physiology and veterinary science. Required in the agricultural, household science, pharmacy and literary commerce courses. Seven hours a week. Prerequisite, course I. Laboratory deposit, $3.00.

Course IV.—*Physiology.*—Junior year; third term. A course in human physiology designed for students having a knowledge of general biology and of vertebrate anatomy. The student should also possess some knowledge of chemistry and physics. Required in courses in agriculture, household science, pharmacy, business and literary commerce. Seven hours a week.

Course VI.—(*a*) *Evolution.*—Senior year; first term. A course of lectures and collateral reading on organic evolution; covering such topics as the evolution of evolution, variation, struggle for existence, heredity, etc. Prerequisites, courses I and III. Two hours a week. Elective.

(*b*) *Systematic Zoology*.—A discussion of the principles of zoological classification with particular reference to species of economic importance. Prerequisites, courses I and III. Three hours a week. Elective.

(*c*) *Advanced Entomology.*—A laboratory study of some restricted group of insects, of some particular species of economic importance, or of the insects affecting some particular crop. In this course students have free access to the collections and the library and records of the experiment

station. The course extends throughout the year. Prerequisites, courses I and II. Seven hours a week. Elective.

Course VII.—(*a*) *Histology.*—Senior year; second term. A course of laboratory practice in fixing, hardening, imbedding, sectioning, staining, mounting and studying the tissues of the higher animals. Prerequisites, courses I and III. Seven hours a week. Elective.

(*b*) *Advanced Entomology.*—A continuation of course VI *c*.

Course VIII.—(*a*) *Embryology.*—Senior year; third term. Mainly a laboratory course in the study of the development of the frog and the chick, supplemented by a study of the general facts and principles of embryology. Prerequisites, courses I, III and VII *a*. Seven hours a week. Elective.

(*b*) *Advanced Entomology.*— A continuation of courses VI *c* and VII *b*. Seven hours a week. Elective.

TEXT-BOOKS AND REFERENCES.

Courses I and III.—Texts, "Animal Life," Jordan and Kellogg and "Animal Forms," Jordan and Heath. References, "Outlines of Zoology," Thompson; "Text-Book of Zoology," Parker and Haswell; "Text-Book of Comparative Anatomy," Lang; "Invertebrate Morphology," McMurrich.

Course II.—Text, "Insect Life," Comstock. References, "Manual for the Study of Insects," Comstock; "Insects Injurious to Fruits," Saunders; "Economic Entomology," Smith. Bulletins and reports of the various experiment stations and of the United States Entomologist.

Course IV.—Text, "The Human Mechanism," Hough and Sedgwick; References, "An American Text-Book of Physiology," Howell; "Practical Physiology," Sterling.

BOTANY AND FORESTRY.

EDWARD R. LAKE, M. S., Professor.

BOTANY.

The aim of the regular course in botany is to give the student such a working knowledge of plants and plant-life as will enable him to intelligently consider the various problems of vegetable life as found on the farm, and in the garden or forest.

The student is taught to observe plants; to become familiar with them through a working association; to ascertain by actual field-work and observation what plants do, and what relations they bear to each other, and to other forms of life.

The chief features of the work are field and laboratory exercises, supplemented by lectures and recitations. Text and reference books are used merely as guides, or for the purpose of furnishing suggestions to the end that the student may be enabled the better to make the field, garden, greenhouse and laboratory work the more effective.

The department has a good working equipment for the courses outlined. Individual sets, comprising dissecting and compound microscopes, laboratory glassware and other apparatus are supplied each student at a moderate rental fee. The collection of mounted and unmounted plants, especially rich in Oregon types, together with charts, models and preserved specimens furnish ample material for both regular and special advanced work in the several courses.

Course I.—*Plant Morphology.*—Freshman year; third term. Laboratory and field exercises, together with recitations. The gross structure of our common plants is the

main topic of this course. In the field-work particular attention is given to ecology—the plant in its relation to soil, air, water, light and the other plants that are associated with it. Incidentally germination, growth, fertilization and fructification are considered. Seven hours a week. Laboratory deposit, $1.00. Atkinson, College Botany; Bergen and Davis, Principles of Botany; Coulter, Plant Relations.

Course II.—*Plant Histology.*—Sophomore year; first term. Laboratory work with the dissecting and compound microscopes. The exercises of this course cover the minute structure of the higher plants, together with a brief consideration of the lower forms of plant life. Seven hours a week. Laboratory deposit, $2.50. Atkinson, College Botany; Coulter, Plant Structures; Strassburger and Hillhouse, Practical Botany.

Course III.—*Plant Physiology.*—Junior year; second term. Laboratory exercises and recitations. The subject is considered with special reference to the needs of the agriculturist and horticulturist. The principal part of the discussion is upon those phases of the subject that bear directly upon our cultivated crops. Seven hours a week. Pre-requisite, course II. Laboratory deposit, $3.00. Green, Vegetable Physiology; Sorauer, Physiology of Plants; McDougal, Plant Physiology.

Course IV.—*Plant Classification.*—Junior year; third term. This course is designed to meet the demands of the pharmacist for a working knowledge of plants in general. Much stress is laid upon field and laboratory work. Plant relationships, plant societies, regional types, plant products, the medicinal and poisonous species of our common plants, are some of the topics considered during this course. Required in the course in pharmacy. Seven hours a week. Laboratory deposit, $1.50.

Course V.—*Plant Pathology and Hygiene.*—Senior year; first term. Laboratory and field work supplemented by lectures and recitations. The common fungous foes of the cultivated field, orchard and garden crops, together with the means of prevention and remedy are considered at length. Seven hours a week. Elective. References, Lodeman, Weed and Smith.

Course VI.—*Plant Products.*—Senior year; second term. Economic plants and their various preparations and uses. History, development, and distribution of the plants that furnish the world with its chief supply of material for food, shelter, clothing, fuel, medicine and the arts. Elective. Five hours a week.

Course VII.—*Systematic or Cryptogamic Botany.*—Senior year; third term. The work of this course is arranged to meet the needs of those electing it. In the systematic work, the student collects and classifies a hundred or more of the local plants, giving data as regards habitat, and distribution, and prepares a synopsis of the orders considered and species collected. Some time is also devoted to a study of current botanical literature.

In the cryptogamic work, the exercises are confined chiefly to a study of the comparative morphology of the fungi, algæ and other low forms of plant life. Seven hours a week. Elective. Laboratory deposit, $2.50.

Course VIII.—*Agrostology.*—Senior year; first term. A brief course designed to meet the needs of those students who desire to get a working knowledge of the more common forage grasses, particularly the local native and introduced species. The economic aspect of the subject so far as relating to culture and feeding value will be considered by the agriculturist. Students intending to select this course must make application before the close of the preceding term.

The laboratory deposits in courses I, II, III, IV and VII are required of all students, and are made to cover possible loss and breakage of apparatus used. At the close of each term such balance as may remain, is returned to the student. All deposits are required to be made in advance.

Course IX.—*Plant Evolution.*—Lectures and recitations supplemented by a study of types of both geologic and present day forms. The course traces the development of plants through the various periods of their existence as plastic organisms yielding to the world changes ever in progress, as factors in the world-building processes, and as organisms from which may be drawn lessons as to the significance of increased complexity in world activities. Scott, Fossil Botany; Campbell, The Evolution of Plants; Bailey, The Survival of the Unlike.

Course X.—*Plant Breeding.*—Lectures and recitations covering the history, progress and practical application of the laws of heredity, variation, pollination, hybridization, mendelism, mutation, as we understand them today as factors in the improvement of plants. Bailey, Plant Breeding; Survival of the Unlike; DeVries, The Mutation Theory.

FORESTRY.

The course in forestry is designed to meet the needs of those men who desire to enter the government forest service, or to fit themselves to care for the forest areas of private owners.

Course I.—*Club-work.*—The "Forest Club" meets twice each month for the discussion of current forestry literature. magazine articles, news items, legislation, and general progress movements pertaining to forests, forest-service, forest-products, forest-industries, lumbering, and the lumber trade. First and third Fridays, each month, 7 p. m.

Course II.—*Club-work.*—In addition to work outlined in Course I, members of the third year class are required to take an active part in the affairs of the "Camera Club", an organization for the advancement of "camera craft". Besides the regular discussions of topics pertaining to lenses, cameras, camera outfits, plates, films, printing-papers, negatives, lantern-slides, transparencies and general technique, there will be occasional lectures on Art and Nature, artistic photographs, photographs for scientific purposes, photographic illustration, etc., etc., and frequent demonstrations of material and processes. First Thursday, each month, 7 p. m.

Course III.—*Club-work.*—In addition to the work of Courses I and II the members of the fourth year class will perform actual service in the "Rod and Gun Club," an organization having for its special field of work the study and promotion of all matters of moment pertaining to the game and fish interests of forest and field, game preserves, game-laws, game-breeding, game-protection, huntsmen's clubs, sportsmen's liabilities, and other pertinent topics. Second Friday, each month, 7 p. m.

Course IV.—*Sylviculture.*—Throughout second year. The principles of plant propagation; the structure, dissemination, germination, vitality, collection and preservation of tree seeds; seedbeds, seedage, cuttage, nursery-work, transplanting trees, pruning, thinning, pure and mixed plantings, nurse trees; forest reproduction by successive cuttings, selection, coppice.

Course V. — *The Forest.* —Third year; first term. The principles underlying the growth, development and maintenance of forest areas. The tree as a factor in forest types, and as a unit of vital force in the forest-crop. A brief outline of forestry in Europe, together with the history of the forestry movement in America, and its present status.

Course VI. — *Dendrology.* — Third year, third term. The study of trees from a taxonomic standpoint. Particular stress is put upon a study of those features which enable one to identify trees afield. The course includes lectures, laboratory and field work.

Course VII—*Forest Industries.*—Fourth year; second term. A discussion of the various industries depending upon the forests, together with the consideration of questions relating to improved ways of utilizing our forest crop.

Course VIII.—*Forest Finance.*—Fourth year; first term. The value of the forest: stability of investment, dividends on the investment; local problems in forest finance.

Course IX.—*Forest Administration.*—Fourth year; second term. General principles of effective administration, working-plans, estimation; methods of harvesting the crop; principles governing the execution of working-plans.

Course X.—*Forest Economics.*—Fourth year; third term. Taxation, tariff, transportation, markets, labor, organization, trusts, public welfare, commerce.

Course XI.— *Timber Technology.*—Fifth year; first term. Timbers as to strength, toughness, hardness, flexibility, grain, texture, etc., etc. Warping, swelling, density. The influence of these properties upon the market value of timbers; factors which determine the uses of various economic woods.

Course XII. —*Lumbering.* — Fifth year; second term.

Lumbering practices, utilization of waste, cutting, seasoning, commercial standards, bridge-stuff, framing, sheathing, finishing, lath, shingles; furnishing, as doors, sash, blinds, etc., etc. Grading lumber; markets and marketing.

Course XIII.—*Forest Policy and Protection.*—Fifth year; third term. Legislation for forest conservation, protection and renewal; National and State enactments regarding reserves, parks, water-sheds and irrigation.

The relation of the forests to National and State industries, statistics, protection against fires, trespass, insects, diseases, weeds and storms.

SUMMER CAMP.

All students in the regular course in forestry will be required to spend two sessions of eight weeks each during July and August of the junior and senior years in the forest. One session is required at Camp Reserve; a part of the other, at the option of the forester, may be spent in lumber camps, mills or factories. The objects of these summer sessions are two-fold; to give the student a practical working knowledge of the subject in hand, and to advance his technical training. In view of these ends the work of the summer session is diverse and is presented in two general ways,--lectures and field-work.

JUNIOR YEAR—LECTURES.

These are presented as a series of campfire talks and discussions covering the following topics:

1. Methods of field-work.
2. Forest transportation, trail and road construction.
3. Pack animals, selection, care and management.

4. Forest-service, duties of fire and game wardens, rangers, and other officers.
5. Forest physiography including field-geography, geology and plant distribution.
6. Timber cruising, mensuration.
7. Forest fires, prevention, fighting, remedies.
8. Grazing in forest areas.
9. Fish and game; hunting, trapping, fishing, breeding, etc.

WOODCRAFT.

This is a series of daily practical exercises in field forestry. The subjects with which the student will be required to have an actual working knowledge are: packs and packing; trail and road making; camp equipage; camp making; camp fires; water supplies; camp cooking; woodsmen's tools, their use and abuse; use and care of fire arms; dressing and preserving game; care of skins, furs, hides and pelts.

FIELD WORK.

Observations, general and special, geology, meteorology, hydrography, biology, dendrology, daily or weekly assignments, sylviculture, cruising, surveying, mensuration, records, charting, mapping, photographing.

TIME FACTOR IN CAMP SESSION.

JUNOR YEAR.—FELD WORK.	Hours
Surveying	72
Mensuration	72
Dendrology	40
Sylviculture	40
Botany	20
Zoology	24
Entomology	20
Geology	24

OFFICE WORK.

Mapping and Charting	32
Records	8

LECTURES.

Fish and Game	8
Forest Service	12
General Topics	12

SENIOR YEAR.—LECTURES.

Influence of Forests and Trees upon National Life.
Forest Laws.
Forest Policies.
Forest Management.
Forest Administration.
Forest Reserves, National and State Parks and their values.
The Forest as a health resort.

FIELD WORK.

Logging; transportation of timber; camp management, milling, pulping, distilling, utilizing waste, preserving timbers and lumber, working plans.

HORTICULTURE.

CLAUDE ISAAC LEWIS, M. S. A.

The aim of this department is to give the student as thorough a training as possible within the time allowed. The whole year is given up to a study of various phases of fruit growing. Not only are the principles studied, but their direct application to the conditions on the Pacific coast is considered. The work consists of lectures, laboratory practice, and field exercises, supplemented by reference readings from standard horticultural books and current horticultural bulletins. Standard horticultural periodicals are kept on file for student reference. To aid in making the work as practical as possible we have a station orchard containing many varieties of fruits, and also an experimental apple orchard of only one variety, which is conducted as a commercial orchard.

The courses are outlined below, but are not closely confined to the time limits given, as it is the aim to study the various problems at the times when practical work can be done, thus giving the student the opportunity to supplement the class-room exercises by work along these lines in the orchards. Ample opportunity is given students to work on Saturdays and other spare hours in the college orchard under trained directors.

Course I.—Senior year, first term. The first half of this term is given up to a study of the problems of harvesting, packing, storing, and marketing fruits, and is conducted chiefly in the orchard. Each student is required to be able to put up a commercial pack.

The second half of this term will be given up to a systematic study of fruits. The large collection on the station grounds, supplemented by fruit collected from other localities, offers to the student a splendid opportunity to make systematic studies of these fruits. Five hours a week.

Course II.—Senior year, second term. The work of this term will consist of a study of propagation, pruning, and such orchard management problems as choice of site, preparation of soil, tillage, irrigation, etc. Five hours a week.

Course III.—Senior year, third term. The first half of this term is devoted to a study of plant breeding. The remainder of the term will be devoted to problems of orchard management not studied in Course II. Five hours a week.

ELOCUTION.

HELEN V. CRAWFORD, B. S., Professor.

"There is one accomplishment, in particular, which I would earnestly recommend to you, Cultivate assiduously the ability to read well. Good reading is the natural exponent and vehicle of all good things. It seems to bring dead authors to life again, and makes us sit down familiarly with the great and good of all ages."

It is the purpose of this department to train the pupils to become thoughtful, intelligent, and agreeable readers. To give them the power to extract thought from the printed page, and by systematic drill both in physical culture and voice work to give them adequate vocal expression. To instill in the minds of pupils a love for good literature, and a genuine pleasure in interpreting and rendering the same.

Courses I and II.—*Elocution.*—Freshman year; first and second terms. Analysis and rendering. Voice culture, physical culture. Two hours a week. How to Speak in Public, Kleiser.

Course III.—*Elocution.*—Freshman year; third term. Voice culture, bodily expression, analysis and rendering. Two hours a week. How to Speak in Public, Kleiser.

Courses IV, V and VI.—*Advanced Elocution.*—Senior year; first, second and third terms. Voice culture, rhythmic movements, literary analysis and rendering. Elective. Two hours a week. How to Speak in Public, Grenville Kleiser.

Senior year.—Rhetorical exercises will be required second term of senior year.

FLORICULTURE, OLERICULTURE, AND LANDSCAPE GARDENING.

GEORGE COOTE, Professor.

Instruction in floriculture is given to the classes in household science. Floriculture is intended to acquaint students with the habits and requirements of the many hardy plants for outside decoration and also with the propagation and management of tropical and subtropical varieties. Thus students are enabled to acquire considerable insight into the proper care of greenhouses. In order that this plan may be carried into effect, lectures supplemented by practical work in the propagation, potting and care of plants, are regularly given in the classes.

Course I.—Sophomore year; second term. Propagation of spring and summer plants for adorning the home grounds.

Course II.—Junior year; first term. Propagation of soft wooded plants, care of greenhouse, propagation and care of winter flowering plants.

Course III.—Senior year; third term. Landscape Gardening is treated as a fine art. Introductorily the arts of design in general are discussed. Then are discussed the principles, aims and methods of artistic gardening. The principles, when once understood, are applied to the embellishment of home grounds, cemeteries, parks and highways.

Course IV.—Senior year; third term. Five acres set apart for the growing and testing of the leading varieties of all kinds of vegetables aid very materially in teaching the course given in Olericulture. In this course the student learns "How to Grow Vegetables."

LITERARY COMMERCE COURSE.

T. H. CRAWFORD, A. M., Professor.
HELEN L. HOLGATE, B. H. E., Stenography and Typewriting.
JUANITA ROSENDORF, B. S., Asst. in Stenography and Typewriting.

This course leads to the degree of Bachelor of Science. The requirements for entrance to this course are the same as those for entrance to any one of the Freshman years in any of the other courses. See page 23.

One of the most attractive features of this course is the prominence given to English. Every term in the entire four years—with but two exceptions—presents the subject of English, making this emphatically a literary course.

Along commercial lines, the subjects of book-keeping, stenography, typewriting and commercial arithmetic are made prominent in the sophomore, junior and senior years and in the junior and senior years commercial law, civics and economics are studied.

The subject of penmanship is taken up in the third term of the freshman year and made prominent every term until the close of the junior year.

In mathematics—in addition to commercial arithmetic—there are algebra and geometry, All the mathematics come in the first two years.

During the sophomore and junior years either Latin or German is studied continuously. In these years will also be found the subjects of history, aesthetics, and psychology.

A fee of $1.00 per month during term time will be charged for the use of the typewriting machines.

None but regular juniors and seniors in the course take stenography and typewriting.

BACTERIOLOGY.

EMILE F. PERNOT, M. S., Professor.

Within the last decade bacteria have laid a very strong hold on the thought and imagination of the scientific world, and have come to be looked upon as playing a most important part, not only in the production of disease and in fermentation, but also in many everyday processes hitherto supposed to be dependent on very different causes.

In consequence of this, bacteriology has been raised to the dignity of a science, and its ramifications have become so numerous and widespread that many of the other sciences, and even some of the arts, have been freely pressed into the service of one or the other of its branches.

The study of bacteriology has made great strides both in the pathological and the technical branches of the subject; and just as investigations into the physiology of higher plants gave the first impetus to the establishment of agricultural experiment stations in all countries; so, in like manner, the physiology of fermentation and technical bacteriology have called into existence, within the last few years, a number of stations and laboratories for the development of those branches of industry wherein micro-organisms play an important part.

This college has a well equipped bacteriological laboratory for the investigation and study of bacteriological diseases, both animal and vegetable.

The following courses of lectures and laboratory work have been added to the college curriculum as electives in the senior year:

Course I.—*Bacteriology.*—Senior year; first term. A course in the elements of bacteriology, including lectures, and laboratory practice in sterilizing, making culture media, inoculating and growing cultures, studying cultural characteristics of certain definite species of bacteria, mounting, staining and examining slides, classification.

Course II.—*Dairy Bacteriology.*—Senior year; second term. Study of the bacterial diseases of milk, bacteria in the dairy; study of bacteria in butter making and in cheese making; study of yeasts and ferments.

Course III.—*Bacteriology.*—Senior year; third term. Lectures and laboratory work in pathogenic germ diseases of stock and poultry; a study of vaccines, their manufacture and use; of the nitrifying bacteria in leguminous plants; of bacteria in the soil and the bacterial analysis of water.

Text-book used, "Essentials of Bacteriology," M. V. Ball.

REFERENCE BOOKS.

Manual of Bacteriology, Sternberg; Manual of Determinative Bacteriology, Chester; Bacteriology and Infective Diseases, Crookshank; Principles of Bacteriology, Abbott; Traite de Bacteriologie, Mace; Pathogenic Bacteria, McFarland; Ptomains, Leucomains, Toxins and Antitoxins, Vaughan & Novy; Micro-organisms and Disease, Klein; Microbes, Ferments and Moulds, Trouessart; The Hygienic Laboratory, Kenwood; Traite de Microbiologie, Duclaux; Pathological Histology, von Kahlden; Pathological Technique, Mallory and Wright; Clinical Diagnosis, Simon; Micro-organisms in Water, Frankland; Technical Mycology, Lafar; Bacteriology (Text and Atlas), Lehmann and Neumann; Micro-organisms and Fermentation, Jorgensen; Dairy Bacteriology, Von Freudenreich; Practical Studies in Fermentation, Hansen; Practical Bacteriology, Kanthack and Drysdale; Fungi and Fungicides, Weed; Bacteria and Their Products, Woodhead; the Methods of Bacteriological Investigation, Huppe; Agricultural Bacteriology, Conn. Publications of the Department of Agriculture.

DRAWING.

Farley D. McLouth, B. S., Instructor.

Of the five senses, or gateways of knowledge, two, seeing and hearing, belong to the intellectual part of our nature, while the others chiefly supply our animal wants. The sense of seeing is at once the most active, the most comprehensive and the most intellectual of them all. It is the servant of the soul and through it we receive the richest ideas.

The chief aim of the course in drawing is to teach the student to see truly, to obtain quicker perceptions, and to develop a keenness of observation, accurate judgment and a concentration of the mind. Few among us see truly what we see and then only what we have been educated to see. While no teaching can make an artist in the full sense of the word, any more than the study of the forms and methods of poetry can make a poet, yet drawing, as surely as rhetoric, should form a part of a thorough education; for besides the general quickening of perception and the training of the eye to accuracy of sight, it affords the means of noting the forms of objects such as no written descriptions can secure. It affords a mode of expression second only to language itself.

In considering the study of drawing, its importance is too often lost sight of, and yet it may be safely said that not only is drawing a corner stone in the foundation of an industrial education, but of a scientific education as well. In engineering courses, for instance, a knowledge of drawing is one of the first requirements.

In the first and second terms of the freshman year the work is confined entirely to outline drawing, realizing that as an aid in other branches of study, careful outline is of more importance than shading. Exactness of outline and accuracy of proportions are the aim.

Course I. *The Elements of Drawing.*—Freshman year; first term. The work includes the first principles of drawing and of freehand perspective, drawing from simple block casts. Lectures. Three hours a week.

Course II.—*The Elements of Drawing.*—Freshman year; second term. A continuation of course I, drawing from casts. Lectures. Three hours a week.

Course III.—*The Elements of Drawing.*—Freshman year; third term. Everything that is seen in the world around us presents itself to our eyes in an arrangement of spots or patches of different colors variously shaded, or patches of light and shade, and to this course III is shaped making a decided change. To one not having a knowledge of the work, it might seem as though it were carried far to the other extreme, for now we use no outlines at all, but work in patches or spots, and give our attention to areas and values of light and shade. The work is from casts of geometric figures and from simple still-life studies. Lectures. Three hours a week and course II continued two hours a week. In course III the engineering students are taken to the shops, where they make working drawings from parts of machinery, tools, etc.

Courses IV, V and VI.—*Advanced Drawing.*—Senior year. Facilities for advanced work are offered as an elective throughout the senior year. The work includes still-life, cast drawing, carried to the antique and leading to work from life as the pupil exhibits ability. Lectures. Five hours a week.

A course in design, interior decoration and applied or industrial art generally, is being prepared for advanced students.

PHYSICAL CULTURE.

WILL ORIAN TRINE, Physical Director.
GILBERT S. HARTSON, Assistant.

The aim of this department is to secure and maintain perfect health. To this end we strive to develop a symmetrical and graceful body. No pretense is made at developing actors, and no one is required to do what is known as "heavy work." However, there are always classes and special teams in various lines of artistic gymastics, and those enjoying the work are welcome.

The chief aim is to benefit the weak and to guard against developing any tendencies to weakness or disease that so often exist. To this end every man entering the department is given a rigid physical examination. In these examinations the exact condition of the man is noted and special exercises are prescribed to meet his particular case. Records are kept, making it possible by later examinations to note results of work and progress made.

The work is largely selected from the German and Swedish systems of gymnastics and "The Grading of Gymnastic Exercises" by George M. Martin. A progressive course is followed. The class work which is carefully planned aims primarily to cure the common physical defects, such as narrow chest, stooping shoulders and weakened muscular system.

The gymnasium is well equipped for thorough work. The basement is provided with lockers and bath rooms for both men and women. The main floor is equipped with horizontal bar, parallel bars, buck, horse, rings, ladders, trapeze, dumb-bells, clubs, wands and other apparatus. South of the gymnasium is a large athletic field, with a quarter-mile track, grandstand, 100-yard straight-away track, tennis courts and football grounds.

MINES AND MINING.

John Fulton, B. Agr., B. S., Prof. of Mineralogy and Geology.
Gordon V. Skelton, C. E., Professor of Mining Engineering.

Instruction is given in this department to familiarize the student with the most approved methods of successfully carrying on mining operations as practiced on the Pacific coast. The student is taught the uses of the various surveying instruments and is given ample opportunity for practical application in both field and mine surveying.

The student is also taught how to care for and handle such machinery as boilers, engines, motors, pumps, etc., by practical study and use in the machine shops.

The course in mineralogy is designed to make the student familiar with all the common forms of minerals and their systems of crystallization.

Crystallography is first taken up, and the laboratory work consists of the study of crystal models and natural crystals.

After sufficient familiarity with crystal forms, the students are required to make drawings from actual measurements with the reflecting goniometer, by using the Penfield sheets and special protractors, and at least two each of the different systems are required.

Any student who has passed the course should be able to identify all but the rarer species. For all practical purposes this is sufficient. This course is required of all mining students but as it includes all the various blow-pipe as well as the other chemical tests, all who intend to become chemists will find it to their advantage to take at least crystallography.

Mineralogy I.—*Crystallography.*—Junior year; third term. Required of mining students, and open to seniors in both mechanical and agricultural courses. Seven hours a week.

Mineralogy II.—*Chemical and Descriptive Mineralogy.*—The laboratory work consists of blow-pipe analysis. On alternating days recitations and lectures. Seven hours a week.

Mineralogy III.—This is a continuation of course II, and consists of the description and identification of the silicates. Seven hours a week. Qualitative analysis is required of all students who desire to enter these courses.

Mineralogy IV.—*Assaying.*—Senior year; second term. A course in practical assaying of gold, silver, iron, mercury, zinc and copper ores. Must be preceded by qualitative analysis and mineralogy I. Six hours a week.

Mineralogy V.—*Assaying.*—Senior year; third term. A continuation of course V. Six hours a week.

Mineralogy VI.—*Metallurgy.*—This course is designed to give the student a general knowledge of metallurgical principles and of the materials used in the extraction of metals from their ores. It will include a general description of fuels, furnaces, crucibles, slags and mattes, as well as the methods of extracting metals by wet processes, such as cyaniding, or chlorination. Seven hours a week.

Mineralogy VII.—This is a course in advanced metallurgy, consisting of the complete analysis of ores and metals, and is chiefly laboratory work. Elective.

Mineralogy VIII.—*Metallurgy of Iron and Steel.*—Laboratory and lectures. Elective.

All courses in mineralogy must be preceded by Geology I, and courses in metallurgy, by Geology II.

Geology I.—*General Geology.*—This course consists of both recitation and laboratory work, and, when possible, excursions into the adjoining country, to make observations upon the various geological phenomena. Five hours a week.

Geology II.—*Mining Geology.*—This course consists of lectures and recitations on the origin and geological relations of ore deposits, and is primarily for mining students. Five hours a week.

The courses in assaying cover analysis of gold, silver, mercury and lead ores, by the fire or dry assay, and the estimation of copper, iron and zinc, by the volumetric or wet assay.

Instruction in rapid estimations of various metals is also given when time permits.

The equipment of the assay laboratory consists of one simplex ore crusher, two wall cupel machines, two analytical balances (Spohrhaese), one Becker button balance, two Spohrhaese button balances, two pulp scales, one bucking board, one Weatherhead crusher, three crucible furnaces, three muffle furnaces, two combination muffle and crucible furnaces. All above furnaces are heated by Hoskins' gasoline burners, supplied by pressure from one fifteen-gallon pressure tank. In addition, there are furnaces for coal or coke, both stationary and movable, anvils, moulds, tongs, scorifier-crucible and cupel-hand cupel machines, etc.

Nothing has been omitted in the equipment of a first-class assay laboratory, so that students completing the full course will have no difficulty in taking up the duties usually incumbent upon the assayer.

There have been added during the past year, a Fuess reflecting goniometer, a quantitative balance, two sets of crystal models and an extensive mineral collection.

A valuable addition to the mining department has just been completed, which is a metallurgical laboratory sufficiently large to accommodate 72 students.

In addition to the regular course there has been added another year's work for the completion of which shall be granted the degree of Mining Engineer.

The year's work will be largely a continuation of the fourth year's courses, in some cases extending into research work, while at the same time attention will be given to the courses required by other institutions offering advanced instruction along the lines of mining economy, so that students from this institution may not be prevented from completing the necessary amount of work entitling them to the master's degree, within the required time.

The requirements of such institutions as Stanford, Berkeley, Cornell, and Columbia School of Mines have been duly considered.

Texts.—Scott's Geology, Furman's Assaying, Eakle's Physical Mineralogy, Moses & Parsons' Blow-pipe Analysis. References.—Kemp's Ore Deposits, Dana's Geology, Leconte Geikie, Reiss, Miers, Dana, Brush-Penfield, Cheever and Smith, Spurr, Low, Lodge, Miller.

MILITARY SCIENCE AND TACTICS.

MAJOR FRANK EDWARDS, Professor of Military Science and Commandant of Cadets.

"Whatever arguments may be drawn from particular examples, superficially viewed, a thorough examination of the subject will evince that the art of war is both comprehensive and complicated; that it demands much previous study, and that the possession of it in its most approved and perfect state is always of great moment to the security of a nation."—*Washington's last annual message.*

"In the same measure as we are prepared to enforce them, will our demands upon other nations receive consideration."—*President Theodore Roosevelt.*

The military body consists of two battalions of Infantry, Band of 24 pieces, and such detachments of Cavalry, Artillery, Signal, Hospital and Engineer Corps as may be organized for special instruction. The formation is regimental; the drill and administration are the same as in the Regular Army.

One of the objects of this instruction is to prepare the cadet, so that upon graduation he will be thoroughly competent to hold a commission in the National Guard or volunteer army.

The greater part of the instruction is directed toward having cadets adopt a systematic rule of conduct, inculcating accurate methods in everything they undertake. This not only places cadets in the condition to receive favorably all instruction in the military department, but facilitates study in the other departments and becomes a valuable asset to a young man going out in the world in any profession.

Military drill improves the habits and manners of the student, develops him physically and gives him that military knowledge which it is desirable every citizen should possess that he may render intelligent aid to his country or state in the time of need. It cultivates a manly spirit, ready and implicit obedience, respect for authority and self-restraint—all qualities of inestimable value to a young man.

Instruction in the course is prescribed for all undergraduate male students. Students physically unable to bear arms are excused from active military drill but will be assigned some light duty by the head of the department. The instruction is both practical and theoretical.

The Cadet Band, with 24 instruments, is under the instruction of a competent musician as leader. Ordinarily no cadet will be assigned to the band until he is well instructed in the "school of the soldier" and the "school of the company."

The present armory contains a drill room 700x100 feet in extent, three offices, and suitable rooms for storing guns and other ordnance.

Three hundred Springfield cadet rifles, with equipments, two light artillery field pieces, twenty cavalry sabres, and a liberal allowance of blank and ball cartridges are furnished by the Ordnance Department, U. S. A. Other necessary equipments, apparatus, etc., for the thorough equipment of the military department is furnished by the College.

During the summer vacation the government will probably replace the Springfield rifles with 480 modern U. S. magazine rifles (Krag-Jorgensen), and the muzzle-loading field pieces with two 3.2-inch breech-loading field pieces.

Appointment and promotion of officers and non-commissioned officers and their relative rank in each grade is determined according to the military standing of the cadets, based upon a careful consideration of the following points: (1) Knowledge of drill and other duties as determined by examination, practical application of this knowledge on the drill field, and recommendations of superior officers. (2) Zeal, soldierly bearing and aptitude for command. (3) Character. (4) Military record. (5) General standing in College.

Commissioned officers are selected from the senior class; non-commissioned officers from the junior and sophomore classes; all reductions are to the grade of private. All appointments and promotions are made by the Commandant with the approval of the President of the College.

Officers and non-commissioned officers cannot resign their commissions, except on recommendation of the Commandant, approved by the President; the reasons must be plainly stated in full and must not have been in existence at the time the commission or warrant was accepted.

Drill.—Freshman, sophomore, junior and senior years. The practical course in infantry includes the schools of the soldier, company and battalion, in close and extended order; evolutions of the regiment; ceremonies; guard and outpost duty; target practice and battle tactics. In artillery it includes the schools of the soldier, cannoneer and platoon, dismounted; the mechanism, nomenclature and care of the 3.2-inch breech-loading field piece; the use of artillery in the field.

Those physically unable to bear arms, together with a limited number from the senior and junior classmen, may be assigned to the signal corps and instructed in the usual methods employed in military signaling.

Hospital, cavalry and engineering detachments are organized from time to time for practical instruction in those branches.

Cadets are required to wear a complete uniform at all drills and other military exercises. The wearing of mixed civilian and uniform clothing is prohibited at all times. The uniform complete costs about $16.00 and is of the regulation olive drab color adopted by the United States Army and makes a very neat and serviceable suit.

Students must come prepared to deposit the price of the uniform, for which they will be measured as soon as they learn the position of a soldier.

Proficiency in the military department is a requisite to graduation.

Theoretical Instruction.—One recitation or lecture each week during junior and senior years. This instruction consists of recitations in Infantry, Artillery and Cavalry Drill Regulations, Field Service Regulations, Manual of Guard Duty, Small Arms Firing Regulations, and Army Regulations; instruction in military correspondence and reports and returns; lectures on military subjects that pertain to the organization and administration of the United States military forces in peace and in war.

ROSTER.

Cadet Officers and Non-Commissioned Officers.

Regimental Field and Staff.

Colonel	M. V. Weatherford
Lieutenant-Colonel	W. E. Forsythe
Major, Inspector	G. J. Dodson
Captain, Adjutant	J. G. Kelly
Captain, Quartermaster	D. R. Groves
Captain, Commissary	F. M. Hofer
First Lieut., Insp. Rifle Practice	A. P. Tedrow

Non-Commissioned Staff.

Sergeant Major	W. H. Davolt
Quartermaster Serg.	L. J. Rosenstein
Commissary Sergeant	R. I. Thompson
Chief Trumpeter	N. E. Chapin
Color Sergeant	J. B. Jones
Color Sergeant	J. J. Clark
Color Sergeant	E. R. Woods
Corporal, Chief Clerk	F. S. Ivanhoe

Band.

Captain, Leader	H. L. Beard
Chief Musician	H. Wilkins
Sergeant	R. E. Wills
Sergeant	N. F. Reed
Sergeant	C. A. Harlan
Sergeant	R. B. Adams

Drum Major	C. A. Ingle
Principal Musician	C. F. Cathey
Corporal	O. P. Lumm
Corporal	J. R. Luper
Corporal	E. A. Hudson
Corporal	C. W. Johnson

Hospital Detachment.

First Lieutenant, Commanding	C. O. Dicken
Sergeant	L. F. Darby
Sergeant	E. E. Applewhite
Sergeant	F. L. Griffin
Sergeant	L. B. Russell

Second Lieutenant	J. E. O'Neel
Corporal	R. E. Nichols
Corporal	S. A. Chappell
Corporal	C. L. Rogers
Corporal	E. Hanna
Corporal	W. R. Waggoner
Corporal	L. H. Kelty

First Battalion.

Major	C. G. Brownell
Second Lieut., Q. M.	B. H. Greenhaw
First Lieut., Adjutant	J. Lingaas
Sergeant Major	S. J. Hammel

	Company "A."	Company "B."
Captain	A. K. Berman	A. R. Barnett
First Lieutenant	(C. O. Dicken)	P. A. Jones
First Lieutenant	R. C. Brodie	P. M. Finley
Second Lieutenant	O. R. Spires	
First Sergeant	C. T. Parker	E. P. Harding
Quartermaster Sergeant	(E. Applewhite)	O. C. Johnson
Sergeant	W. C. Bolton	T. R. Sleight
Sergeant	C. F. Cropp	C. H. Hays
Sergeant	W. T. Martin	(F. L. Griffin)
Sergeant	L. L. Doane	H. S. Bilyeu
Corporal	E. E. Allen	T. J. Autzen
Corporal	R. E. Bower	R. W. Worstell
Corporal	(R. E. Nichols)	R. A. Murray
Corporal	H. A. Yeager	P. C. Zimmerman
Corporal	R. H. Sprague	(S. A. Chappell)
Corporal		A. H. Schmidt
Musician	(Corp.) R. V. Williamson	R. E. Porter

	Company "C."	**Company "D."**
Captain	R. W. Allen	P. H. Spillman
First Lieutenant	L. W. Metzer	L. A. Thomas
Second Lieutenant	A. H. Post	L. T. Bowser
First Sergeant	C. C. Hollenberg	R. K. Brodie
Quartermaster Sergeant	A. Anderson	R. E. Reynolds
Sergeant	J. Melhase	C. Christiansen
Sergeant	R. H. Rogers	D. A. Wright
Sergeant	F. N. Fox	L. B. Chambers
Sergeant		F. E. Rowland
Corporal	S. B. Hall	A. K. Chapman
Corporal	H. Zimmerman	C. I. Barnes
Corporal	E. S. McElligott	G. A. Nelson
Corporal	C. Benshadler	A. B. Smith
Corporal	E. Metzger	E. C. Calloway
Corporal		(C. L. Rogers)
Musician	W. R. Carter	R. S. Watts

Second Battalion.

Major	S. H. Graf	First Lieut., Adjutant	F. R. Miller
Second Lieut., Q. M.	C. C. Vincent	Sergeant Major	C. S. Benson

	Company "E."	**Company "F."**
Captain	C. M. Stebinger	R. R. Selleck
First Lieutenant	S. L. Bennett	W. F. Bell
Second Lieutenant	C. V. Schrack	A. A. Witzig
First Sergeant	C. B. Sprague	H. E. Cooke
Quartermaster Sergeant	(L. F. Darby)	C. J. Currin
Sergeant	W. E. Wood	J. G. Schroder
Sergeant	R. S. Milln	B. L. Cunningham
Sergeant	W. K. Barnell	C. T. West
Sergeant	P. J. Cherry	
Sergeant	P. A. Lockwood	
Corporal	W. W. MeKenzie	(E. Hanna)
Corporal	M. J. Gribble	C. Williamson
Corporal	A. E. Stovall	R. Neal
Corporal	E. C. Wiggen	D. O. Taggart
Corporal	W. A. Hensley	G. H. Blackmun
Corporal		J. E. Higdon
Musician	M. J. Lazelle	R. Castle

	Company "G."	**Company "H."**
Captain	D. G. Thayer	R. W. McNeil
First Lieutenant	C. C. Clark	G. J. Reiling
Second Lieutenant	P. C. Rinehart	A. L. Applewhite
Second Lieutenant	(J. E. O'Neel)	
First Sergeant	C. O. Davolt	S. A. Brown
Quartermaster Sergeant	J. F. Winniford	J. E. Hanny
Sergeant	D. C. McMillan	H. C. Leonard
Sergeant	R. Wall	F. E. Hall
Sergeant	D. Q. Elrod	(L. B. Russell)
Sergeant		F. Kerr
Corporal	R. R. Clark	G. E. Whitcombe
Corporal	P. H. Cale	G. Benshadler
Corporal	H. W. Marrs	M. E. Mitchell
Corporal	D. F. Morgan	F. D. Luse
Corporal	G. A. Cross	G. Abraham
Musician	(Corp.) P. O. Pelland	P. Lines

NOTE.—Company officers and non-commissioned officers whose names are in parentheses are with Hospital Detachment.

THE EXPERIMENT STATION.

The station bears an important relation to the college, as the scientific investigations conducted at the station strongly support the instruction given in the class room. Aside from the original investigations of an economic significance to agriculture, the work of the station affords daily object lessons in good modern farming.

About one hundred acres of the college farm are devoted to scientific and experimental farming. Animal husbandry is an important feature of station work. For this branch of the work Shorthorn and Jersey cattle, Cotswold and Shropshire sheep, Berkshire and Chester White swine are maintained. Among these, animals can be found of rare individual excellence, thus offering the student in agriculture an opportunity to study the highest types of the respective breeds.

Extensive field trials are made in the growing of many varieties of cereals, grasses and forage plants, which are utilized in various feeding experiments conducted for the purpose of determining their value as stock foods. This work embraces the study of plant environment and the correlated subject of animal nutrition, thus supporting in a practical manner the science of agriculture as taught in the college.

Dairying is also a prominent feature of the station work. For this purpose a herd of typical dairy cows and a well equipped creamery are maintained. Many problems of vital interest to practical dairymen are constantly being worked out along the lines of rations for cows and methods for handling the herd. The student himself frequently assists in the work and thus obtains tangible evidence of the practical utility of the sciences in dairy husbandry.

The horticultural work of the station affords the student an admirable opportunity for comparing the work of the class room with the practices of the field. Plant breeding, cross pollination of fruits, as well as modern methods of planting, pruning, grafting, spraying and cultivation are all brought immediately under the observation of the student, thus affording him an excellent opportunity to become thoroughly conversant with the science and practice of horticulture.

THE SHORT COURSE IN AGRICULTURE.

To give Oregon farmers who are unable to pursue a four-year course in the Agricultural College, a share in the advantages of higher education, the college has for many years conducted Farmers' Institutes in various parts of the state. But the institute, while it has its place, has developed another movement of perhaps greater importance, that of holding a more extended institute, known as the Short Course in Agriculture, Horticulture and Dairying.

The main conception of such schools is, that they are places where people from the farm and orchard—practical farmers and fruit growers—can understandingly study the application of some of the fundamental laws of their occupation. In announcing the Short Course we feel that we can make it thoroughly practical for any intelligent agriculturist, and that we can make scientific agriculture and horticulture both educational and useful. Such a course covers a field which on account of lack of time and apparatus for illustration cannot be undertaken in the regular Farmers' Institutes.

The course consists of a series of popular lectures along lines suited to aid horticulturists, dairymen and others engaged in agricultural pursuits in developing the great natural resources of our state. The lectures are all supplemented by laboratory work under the supervision of experts who strive to make the course thoroughly practical by adapting the work as far as possible to the needs of each individual. The primary study is of things rather than books, and there is always kept in mind the practical side of the matter under discussion. Little time is spent in purely theoretical discussion.

There will be no educational test. No special preparation is necessary as the instruction will be given by lectures and practical work. It is the aim of this course to give to the student the largest possible amount of practical information regarding the various phases of agriculture and horticulture.

An important source of information for those attending this course is the station and college library where the best books on agriculture, horticulture and dairying are found. The bulletins of the experiment stations of all the states in the Union are on file at the college and will be at the command of anyone wanting them. These bulletins are invaluable as being about the only source from which one can get information as to the present status of, and the progress that is being made in, agricultural and horticultural matters.

An effort will be made to direct the reading along particular lines in such a way that the reader will get in touch with the progressive work that is being done in his particular occupation.

The first lecture of the series will be given at 9 a. m., Tuesday, January 7, 1908, and the course will close on Friday, January 18, 1908.

SHORT COURSE IN DOMESTIC SCIENCE.

There will be a two weeks' course in Domestic Science, under the direction of Dr. Margaret C. Snell and Mrs. Clara H. Waldo, open to all women of the State. The course will begin Tuesday, January 7. Tuition free; no educational test.

SPECIAL COURSE IN DAIRYING.

The establishment of the dairy department of the Oregon Agricultural College on the first floor in the new Agricultural Hall makes it possible for the institution to give a special course in butter and cheese making and subjects closely related thereto. The management of the institution will offer such a course of six weeks duration, beginning simultaneously with the opening of the short course in agriculture.

The course is designed to familiarize students with the modern forms of dairy apparatus, and to teach the underlying principles of the production, care and manufacture of milk into butter and cheese. Both the *how* and the *why* will be the aim of the instructors, and it is the intention that the ideas set forth will be applicable to the farm dairy as well as the larger creamery or cheese factory.

Admission.—The dairy course is open to all persons, both male and female, who are at least 18 years of age and who have a common school education. No entrance examinations will be required, but it is expected that those seeking admission will be able intelligently to understand lectures, take notes and perform a small amount of text-book work.

Equipment.—More than one-half of the floor space on the first floor of Agricultural Hall is devoted to the dairy department. At the left of the main entrance is the dairy instructor's office, and to the right are located the dairy rooms proper. The main work room, located in the northwest corner is 24x44 feet with cement floor sloping from all directions toward the center where a bell trap connects with the sewer system of the building. This room is equipped with seven of the modern styles of cream separators, operated by either steam or hand power. There are also combined churns and workers, box churns, table workers, receiving and ripening vats, pasteurizer and the necessary apparatus for the manufacture of full cream Cheddar cheese.

Adjoining the main work room are lockers for students' use, a well lighted boiler room 16x18 and a wood and store room.

In the northeast corner of the building is the dairy laboratory 22x40 feet, equipped with all the modern devices for testing milk and its products, such as hand and turbine Babcock tests, curd tests, cream scales and automatic acid measures.

Two commodious chesse-curing rooms, 10x16 and 12x16 feet, complete the quarters of the dairy department.

The college library located in the Administration Building will be open to students of the dairy course. Here access may be had to the leading farm and dairy papers of the United States as well as some foreign publications. Full sets of the bulletins of the various experiment stations and the U. S. Department of Agriculture are on the library shelves, also many valuable books pertaining to dairy matters.

Character of Work.—Students will meet for work six days per week. The forenoon of each day will be devoted to practical work in the dairy rooms. Two days per week will be devoted to cream separation and butter making, two days to cheese making, and two will be spent in the dairy laboratory. In the afternoons of all days except those devoted to cheese making, lectures and recitations will occupy two or three hours. The object of this class-room work is to give the student a better knowledge of the underlying principles upon which the practical dairy operations are based. An outline of the work is given below:

LECTURE WORK.—*Soil Chemistry and Physics.*—This includes a study of the origin and composition of soils and of the plant food contained in them. Such questions as the conservation of moisture; conditions affecting the water-holding capacity of soils; temperature of soils, etc., discussed and illustrated by experimental work. In this connection the composition and use of fertilizers is considered, including the discussion of both farm manures and commercial fertilizers, their composition, and when and how to use them.

Feeds and Feeding.—This includes the study of forage plants, growth, adaptability, chemical composition and their relationship to successful dairy husbandry—the study of the fundamental principles of animal nutrition, including digestion, assimilation—the composition and feeding value of the different grains and commercial feed stuffs and how they should be fed for best results in milk production.

Milk and Its Products.—For this work a text-book, "Milk and Its Products," by H. H. Wing, is used, supplemented by lectures. Some of the topics covered by the text are: Secretion and composition of milk; pasteurization; market milk; the ripening of cream; principles of the Babcock test; milk for cheese making; varieties of cheese, etc. Creamery accounts and herd records will also be taken up in this connection.

Dairy Bacteriology.—Lectures and laboratory demonstrations are given relative to the various forms of bacteria which are of interest to the dairyman.

Breeds and Breeding.—A necessary requirement of a successful dairyman is the ability to harmonize breed and environment. Hence this work embraces the study of the origin and characteristics of the leading dairy breeds, adaptability, form as related to function and a general discussion of types.

The college maintains a typical herd of dairy animals comprising representatives of three popular breeds, thus affording the student an excellent opportunity to make comparisons. Stock judging both by the card system and by comparison is a feature of this work.

Chemistry of Dairy Products.—In these lectures the comparison of dairy products is dealt with more in detail than it is possible for the lecturer on dairying to do. In order to bring out and emphasize certain points, these lectures are accompanied by experiments and the examination of dairy products.

Veterinary Science.—This will consist of a general discussion of the causes of the common diseases of cattle, their treatment and best means of prevention. It will also include discussions relative to the usual management and care of the herd and individual members thereof, in health or disease.

Steam Engine.—Discussions and practical work relative to the structure, care and operation of steam engines and boilers, with special reference to the principles involved, are held. Four boilers and a like number of engines are available for illustration in this work.

LABORATORY.—*Practical Dairy Work.*—This work consists of extended practice in the use of the Babcock test in determining the percentage of butter fat contained in milk, skim milk, buttermilk, cream, whey, butter, and cheese. Particular attention is given to the use of scales in connection with cream testing. The use of acid tests for determining the ripeness of the cream is considered. Daily practice in the application of results obtained is afforded.

Butter Making. Seven latest style cream separators furnish practice in the removal of cream from milk. A combination churn, a trunk churn, and a table worker will illustrate the operations of churning and working butter. One and two-pound moulds, and cutting boxes illustrate the methods of finishing. All work in this line is performed by students under the direction of the instructors.

Cheese Making.—The manufacture of full cream Cheddar cheese is considered. Attention is given to the small sizes, known as Young Americas. Some partly skimmed milk cheese is made to illustrate the effect of the removal of a portion of the cream. The use of various rennet tests is taught, also the hot iron test. Small vats are used in this work in order that each student may have an opportunity to carry the work through from start to finish.

EXPENSES.

Fees.—There will be no fees except a breakage deposit of $3.00, a portion of which will be returned at the close of the term. This deposit is mainly to cover breakage of glassware in the laboratory, and in case of no breakage the fee will all be returned, except a small fee for material.

Board and Lodging is obtainable in Corvallis at $3.00 to $4.00 per week. A list of places may be seen at the office of the dairy instructor.

Clothing.—Students are ordinarily required to wear white suits while at work. These can be purchased in the Corvallis stores at $1.00 to $1.50 per suit, consisting of cap, trousers and jacket. A pair of colored overalls will also be found useful at times.

Books.—This item will not exceed $2.00. The only regular text-book will be "Milk and Its Products," by Wing. Some note books will be needed by those who wish to make the most of the course. Anything required in this line can be obtained in Corvallis.

Since only a limited number of students can be accommodated in this course, application for admission should be made to the department of dairying at least two weeks preceding the opening.

The course will open on Tuesday, January 7th, in connection with the opening of the Short Course in Agriculture.

For further particulars regarding the Special Dairy Course address F. L. Kent, Corvallis, Oregon.

FARMERS' INSTITUTES.

One of the most useful methods of diffusing argicultural education is the farmers' institute. These institutes are especially helpful both to the farmer and the experiment worker. The former secures scientific information upon topics of immediate interest to him and is instructed in its practical application to the farm; while the latter is brought to realize more vividly the needs and perplexities of the farmer. It is gratifying to note the growing demand for more of these institutes, and while the station is every ready to accede to these demands, it is annually becoming more difficult on the part of the station officials to fulfill these obligations, owing to the constant increase in the work of the station.

SCHOOL OF MUSIC.

GERARD TAILLANDIER, Director and Professor of Piano.
EDNA J. SHEEHY, Instructor in Voice.

FRANK C. MCREYNOLDS, Instructor in String Instruments.
HARRY F. BEARD, Instructor in Band Instruments.

GENERAL INFORMATION.

The Agricultural College School of Music begins and ends on the same days as the college, and offers not only full courses in piano, voice, violin, but also in band instruments, musical history, harmony, etc.

The school is under the supervision of a director who conducts the examinations and is assisted by other instructors to maintain a high standard of musicianship. All departments are co-operative. All instructors assist each other in creating a musical atmosphere and in giving a musical stimulus; thus creating a feeling of inspiration which naturally assists both teachers and students to reach the ideal set before them. Musical recitals are given each term by the faculty as well as by students. All music students are required to take part in pupils' recitals whenever asked by the teachers, and to attend all recitals given by the School of Music, to all of which they will be given free admission.

All music students must register at the beginning of each term with the Musical Director before going to special teachers.

At the end of each term an examination of musical terms, rhythm, etc., will be given to all music students. The successful passing of this theoretical examination is as important as the practical work of the pupil and due credit will be given for it.

A literary education being as necessary to the musician as to anybody else, all music students are earnestly recommended to avail themselves of the advantages offered at this college to pursue other studies while studying music.

Special music students are required to take not less than two lessons weekly. Others who take a regular college course may take only one weekly. Music students can enter at any time during the year.

Arrangements for renting pianos can be made with the director.

All regular music courses are divided into three courses. Elementary, Intermediate and Advanced, with two grades in each. A post-graduate course in piano is also offered. The courses of instruction are presented in detail. These courses may be varied to suit the needs of the student.

GRADUATION.

The O. A. C. School of Music is conducted on the principles of the best conservatories in America and on the European continent. A diploma is granted to students who successfully complete a full course, but no degrees are conferred. A full course includes the prescribed work in harmony, musical history, and other theoretical branches, besides the specialty piano, voice, violin, etc.

Vocal and violin applicants for graduation must be through the intermediate grade III of the piano course and be able to pass an examination therein. To those who are not regular students in the piano department a fee of $1.00 will be charged for this examination.

To attain graduation, proficiency is more important than length of attendance, but all graduates must have been students at this school for at least one full school year with two lessons weekly.

All graduates must be able to give an entire recital of not less than one hour in length.

TUITION.

Unless otherwise stated all lessons are private lessons of thirty minute duration.

Piano.

$18.00 per school term twice weekly.
$12.00 per school term once weekly.

Voice.

$18.00 per school term twice weekly.
$12.00 per school term once weekly.

Class lessons one hour in length, three in a class—

$12.00 per school term twice weekly.

$ 8.00 per school term once weekly.

Solfeggio: Ten in a class—

$3.00 per school term twice weekly.

Violin.

$18.00 per school term twice weekly.

$12.00 per school term once weekly.

Class lessons one hour in length, four in a class—

$ 9.00 per school term twice weekly.

$ 5.00 per school term once weekly.

Violin, Violoncello, Bass.

Same rates as for violin.

Mandolin, Banjo, Guitar.

$12.00 per school term twice weekly.

$ 8.00 per school term once weekly.

If less than a full term is taken, the lessons will be charged at the rate of $1.00 each twice weekly, and $1.25 each if taken once weekly, but no reduction is made from term rates on class lessons.

Band Instruments.

Private lessons 50 cents per hour.

Theoretical Branches.

$6.00 per term for each study, in classes twice weekly.

Diploma at graduation, $5.00.

Special examinations (see graduation), $1.00.

Music books can be obtained from the instructors.

All tuition is payable in advance to the instructor who assigns the lessons.

No allowance will be made for omitted lessons except in case of protracted illness, in which case due notice must be given to the teacher, who will then no longer reserve the pupil's time. A new hour will be assigned when the pupil resumes the lessons. In case of indisposition, or, if for other good reasons, the pupil is unable to take the lesson, the teacher may arrange to give the lesson at some other time, but all missed lessons must be made up within the term.

Arrangements for renting pianos can be made with the musical director, the charges being 25 cents per week for one hour daily practice, 50 cents for two hours, etc.

PIANO COURSE.

Elementary Course.—Grade I. No requirements for entrance. Kohler Method, Vol. 1; A. Schmitt, Five Finger Exercises; Easy Pieces by Behr, Lichner, Low and others; Kohler, Studies Op. 50, Op. 157, Op. 242.

Grade II. Kuhlau, Sonatines; Major scales and arpeggij; studies by Kohler and Czerny; Pieces by Koelling, Lange, Pacher and others.

Intermediate Course.—Grade III. Major and Minor Scales and arpeggij; Loschhorn, Etudes, Op. 66; Bach, Little Preludes; Mendelssohn, Op. 72; Beethoven, Variations and other pieces.

Grade IV. Cramer-Bulow Studies; Bach, two part inventions; Beethoven, Sonatas, Op. 14, Op. 2; Haendel, Pieces; Kullak, Octave Studies, Book I; Bach, Fantasie in C Minor, etc.; Mendelssohn's Songs Without Words; Weber, Pieces.

Advanced Course. Grade V. Clementi, Gradus ad parnassum; Kullak, Octave Studies, Book II; Moscheles, Etudes Op. 70; Beethoven, Sonatas, Op. 10, 13, 31; Beethoven, Variations, Op. 34; Chopin, Preludes, Valses, Nocturnes, etc.; Bach, Preludes and Fugues; Mendelssohn, Rondo capriccioso; Schumann, Pieces.

Grade VI. Chopin, Etudes, Op. 10 and 25; Bach, Fugues and Suites; Schumann, Faschingsschwank, Op. 26; Liszt, Transcriptions and Rhapsodies; Mendelssohn, Variations serieuses; Beethoven, Sonatas, Op. 26, Op. 27, Op. 53; Chopin, Scherzi and Ballades.

Post Graduate Course. — Grade VII. The post-graduate course carries pupils on from the point reached in the Advanced Course, Grade VI. The more difficult works of Bach, Beethoven, Schumann and others, including concertos, will be taken up, and the study of counterpoint and analysis becomes compulsory. To enter the post-graduate course, pupils must hold diplomas from the undergraduate course of this department or from some other music school of equal requirements.

VOICE COURSE.

Elementary Course.—Grade I. Vocal exercises for placing the voice. Abt Singing Tutor, Vol. I and II; Panofka A, B, C; Zoellner, Forty Exercises; Concone, Fifty Lessons.

Grade II. Concone, Forty Lessons; Sieber, Thirty-six Studies, Op. 92; Nava, Op. 3.

Intermediate Courses.—Grade III. English and Italian Songs. Panofka, Op. 86; Nava, Op. 9; Lamperti, Elementary Exercises; Marchesi, Studies.

Grade IV. Bordogni, Twenty-four Introductory Studies; German Songs and Simple Arias.

Advanced Course.—Grade V. Luetgen, Trill Studies; Lamperti, Dodici Solfeggij.

Grade VI. Bordogni, Thirty-six Studies; Bordogni, Twelve Nouvelles Vocalises; French Songs, Oratorias and Arias.

Diction—English, Italian, French, German.—Diction is the proper enunciation of a language as put to vocal music, thereby giving more style and finish to the work. In the studying of songs special attention will be given to it. Often songs are set to but one authentic language as approved by the composer whose thoughts we interpret; and especially is this true of standard compositions. Translations often change the whole meaning of a piece.

Vocal Sight Reading, Solfeggio.—Vocal sight reading is strongly recommended to all students of this department. It meets the needs of all students deficient in the fundamental principles of music (such as rhythm, intervals, scales, etc.) and who are unable to read vocal music at sight. Proficiency in advanced sight reading is strictly insisted on before graduation. The Solfeggio course consists of Ear Training, Dictation, Sight Reading, Rhythm, Intervals, Solfaging and Part Singing.

A chorus of mixed voices will also be formed during the year.

VIOLIN COURSE.

Elementary Course. - Grade I. Dancla's Paris Conservatory Methods, Book I; Fred. David's Violin School, Book I; Easy pieces by Alard, Jungmann, Bohm, etc.; Easy fantasias by Dancla; Scales.

Grade II. Kayser Studies, Book I; Air and Variations by Dancla, de Beriot; Pieces by Corelli, Papini, Thome, Hauser, etc.

Intermediate Course.—Grade III. Dancla's Conservatory Method, Book II; Kayser Studies, Book II; Gavotte Leonard; Romanza, Spohr; Cavatina, Raff; Romances, Op. 40 and 50, Beethoven.

Grade IV. Kreutzer Etudes; Studies by Dancla, Mazas, Rhodes and others; Andante and Scherzo, David; Concertoes Nos. 6 and 7, De Beriot; Sonata A Major, Haendel; Etudes on caprices, Florilla.

Advanced Course.—Grade V. Spohr, Violin Schule; Sonatas for Violin Alone, Bach; Legende, Wieniawski; Air on the G String, Bach; Seventh Air and Variations, De Beriot; Caprices, Rode.

Grade VI. Twenty-four Caprices, Paganini; Concertos by Brahms, Saint-Saens, Sphor; Perpetual Motion, Ries; Polonaise, Wieniawski; Nocturne Op. 9, Chopin-Sarasate.

THE COLLEGE ORCHESTRA.

An orchestra has been formed for the benefit of the students of the School of Music, but it is also open to all other students of the college, as well as to all other persons in town whom the teacher may deem properly fitted for membership. There is no charge for belonging to this orchestra and both young men and women are admitted.

Last year a String Quartette and Quintette was also formed, besides a mandolin and guitar club.

THE COLLEGE BAND

which is now under the able instruction of Mr. Beard, is an organization of twenty-six members, made up entirely of college students. The position of bandmaster was created in 1905, when the present instructor was engaged. Prior to that time the directing of the band was left to a student.

To become a member of the band a student must pass a satisfactory examination as to knowledge of music and ability to perform on his instrument.

The band will be enlarged as the attendance at the college grows. It is hoped to increase it next year to forty pieces.

The members are required to attend rehearsal every day, while a reasonable amount of individual practice is also expected.

There is no charge for instruction in the band. Those who want private lessons on any band instrument can have the same at 50 cents per lesson. Each member of the band must furnish his own instrument and music stand, except basses, baritones, altos and drums, which are furnished by the college. High pitch is used.

THE GLEE CLUB.

On account of the large number of students in the college, the membership of the Glee Club is limited. Students desiring to become members must be able to pass a simple test in sight reading after satisfying the instructor as to the amount of voice they possess.

THEORETICAL COURSES.

Harmony and Counterpoint, I, II, III.—This course will cover one school year. Emery's Harmony and Bridge's Simple Counterpoint are used as text-books. Only two part simple counterpoint will be taught, with a view to enable the student intelligibly to interpret polyphonic works. This study ought to be taken by all students in advanced grade V, or earlier.

Theory and Musical Form I, II.—These subjects will be taught twice weekly during the winter and spring terms. No text-books will be required for Theory and Form.

Musical History, I, II, III.—Bonavia Hunt's History of Music will be found the most useful and handy book of reference for students taking this course. Instruction will be given principally in lectures upon which the students are expected to take notes. The lectures will be based on the Histories of Music by Rowbotham, Naumann, Hullah, Dr. Riemann, Dr. Nohl, Dr. Langhans, Groves Dictionary of Music and Musicians, etc., and the course will be a very comprehensive one, covering the history of music from the most ancient times to the present. Two periods weekly will be required during the entire school year.

LIBRARY.

RICHARD JEFFREY NICHOLS, B. S., Librarian.

The library of the Oregon Agricultural College occupies one large room and one smaller one, comprehending together about two-thirds of the floor space of the basement story of the Administration Building. The large room, besides containing most of the books, is the reading room.

The library numbers over 4,000 volumes of standard works of history, biography, engineering, agriculture, natural science, mental and moral philosophy, poetry, general literature and reference; also about 10,000 pamphlets and bulletins.

It is also a depository for the publications of the United States Government, of which it has nearly 6,000 bound volumes.

Many of the leading papers and periodicals are regularly subscribed for, of which the current numbers are kept conveniently arranged in the reading room and are accessible to all.

Several dailies, also, are taken, and through the courtesy of the editors a large number of journals, mostly of farm interest, and county newspapers of Oregon, are sent to the reading room.

During the past year, by simply paying the freight, the library secured over two thousand bound volumes, practically all Government publications, from the library of the late United States Senator Dolph.

The Dewy Decimal System of classification is used and the card catalogue is in two parts, the dictionary (author and title) and classed.

The library is open for the issuing of books on every school day from 8 a. m. to 5 p. m., and on Saturdays from 10 a. m. to 3:30 p. m.

Books, excepting cyclopedias and works of general reference, may be drawn out by students for a period not exceeding two weeks.

The following periodicals come regularly to the reading room of the Oregon Agricultural College:

QUARTERLIES AND MONTHLIES SUBSCRIBED FOR.

American Chemical Journal
American Journal of Pharmacy
American Journal of Science
American Kitchen Magazine
American Magazine
American Naturalist
Aualyst
Arboriculture
Atlantic Monthly
Auk
Biological Bulletin
Bird Lore
Blacksmith and Wheelwright
Bookman
Botanical Gazette
Carpentry and Building
Century
Chemical Engineer
Circle
Cosmopolitan
Country Life
Delineator
Engineering News
Entomological News
Everybody's
Forum
Forest Quarterly
Harper's Monthly
Inland Printer
Johns Hopkins University History Series
Johns Hopkins Studies in History and Politics
Journal of American Chemical Society
Journal of Applied Microscopy
Journal of Pathology and Bacteriology
Journal of Medical Research
Journal of Electricity
Journal of Chemical Society (London)
Journal of N. Y. Entomological Society
Ladies' Home Journal
London Journal of Chemical Society
McClures'
Modern Housekeeping
Munsey
North American Review
Outing
Overland Monthly
Pacific Monthly
Philistine
Popular Science Monthly
Power
Readers' Guide
Review of Reviews
School of Mines Quarterly
Scribner's
School Science
Success
Technical World
Torry's Botanical Society
Torry's Bulletin
United States Postal Guide
Woman's Home Companion
World To-Day
World's Work

WEEKLIES AND DAILIES SUBSCRIBED FOR.

American Florist
American Machinist
American Lumberman
Atlanta Constitution
Breeders' Gazette
Boston Transcript
Collier's Weekly
Electrical World Engineer
Engineering and Mining Journal
Florists' Exchange
Mining and Scientific Press
Morning Oregonian
New York World
New York Evening Post
North West Prairie Farmer
Oregon Agriculturist
Oregon Daily Journal
Outlook
Pacific Homestead
Pacific Rural Press

Frank Leslie's Weekly
Gardiners' Chronicle
Harper's Weekly
Hoard's Dairyman
Illuminated World Life
Independent
Journal of Education
Judge
Life
Literary Digest
Puck
Rural New Yorker
Rural Spirit
San Francisco Call
Saturday Evening Post
Science
Scientific American
Springfield Republican
The Evening Sun

COME FREE OF COST.

American Sheep Breeder
American Sugar Industry
Century Path
Chicago Drovers' Journal
Corvallis Gazette
Crook County Journal
Farm, Stock and Home
Farmers' Review
Farmers' Advocate
Farmers' Guide
Forest Grove Times
Home Herald
Homestead
Hood River News-Letter
Kansas Farmer
Kimball's Dairy Farmer
Klamath Falls Express
Missouri Horticulturist
Northwest Poultry Journal
Ohio Farmer.
Orchard and Farm
Oregon Observer
Prairie Farmer
Prineville Review
Reliable Poultry Journal
Southern Farm Magazine
Successful Poultry Journal
The Farmers' Voice
The North Dakota Farmer
The Fruit Grower, St. Joseph, Mo.
The Orange Judd Farmer
The Sugar Beet
The American Thresherman
The Republic, St. Louis
The Valve World
The Pacific Dairy Review
Town and Country Journal
Yamhill Reporter
Wallace's Farmer

THE LAUE PRIZES.

Mr. John M. A. Laue, President of the Oregon State Board of Pharmacy, has generously established two annual prizes of $35 and $15 respectively to be awarded to the two pharmacy students in the Oregon Agricultural College, obtaining the best grades in the regular June examinations held by the Board of Pharmacy. Competition for the first prize is restricted to regular graduates.

LIST OF STUDENTS.

GRADUATES.

NAME.	POSTOFFICE.	COUNTY.
Harry Benjamin Auld, B. S.	Woodburn	Marion
Claude Clifton Cate, B. S.	Hillsboro	Washington
Grover Cleveland Cate, B. S.	Hillsboro	Washington
Mary Cecil Danneman, B. S.	Clem	Gilliam
Mertie Harrington, B. S.	Corvallis	Benton
Annie Laura Hill, B. S.	Hood River	Wasco
Robert Combs Jackson, B. S.	Portland	Multnomah
Edna Marie Osburn, B. S.	Corvallis	Benton
Inez St. Germain Proebstel, B. S.	Corvallis	Benton
Esther Madeline Purdy, B. H. S.	Corvallis	Benton
Sohan Lall Ravi	Amritsar, India	
Harriette Faye Roadruck	Irrigon	Morrow
Walter Eakin Wade, B. S.	Wallowa	Wallowa
Bessie Hart Wilson, B. S.	Canyonville	Douglas

SENIORS.

Ralph Wilmer Allen	Agri.	Rickreall	Polk
Avery Lamar Applewhite	Agri.	Tillamook	Tillamook
Arthur Rex Barnett	Elec.	Portland	Multnomah
Elizabeth Nina Bell	H. S.	Beaver City, Nebraska	
William Frank Bell	Elec.	Beaver City, Nebraska	
Samuel Louis Bennett	Agri.	Medford	Jackson
Arthur Karl Berman	Phar.	Decatur, Illinois	
Belle Rebecca Bonney	H. S.	Woodburn	Marion
Leon Terry Bowser	Mech.	Silverton	Marion
Robert Chester Brodie	Agri.	Lents	Multnomah
Cyril Gideon Brownell	Agri.	Umatilla	Umatilla
Lyman Albert Bundy	Phar.	Moscow, Idaho	
Myrtle Ruth Burnap	L. C.	Philomath	Benton
Cecil Carl Clark	Agri.	Mt. Tabor	Multnomah
John Jay Clark	Elec.	Portland	Multnomah
Pauline Davis	H. S.	Yaquina	Lincoln
Clinton Orr Dicken	Phar.	Hood River	Wasco

Mary Elgin	Phar.	Corvallis	Benton
Percy Marvin Finley	Agri.	Junction City	Lane
Warren Ellsworth Forsythe	Phar.	Enterprise	Wallowa
Helen Margaret Gilkey	H. S.	Montesano, Wash.	
Samuel Herman Graf	Elec.	Portland	Multnomah
Del Roy Groves	Elec.	Portland	Multnomah
Cyrus Ashley Harlan	L. C.	Beatrice, Nebraska	
Max Arthur Hinrichs	Elec.	Hood River	Wasco
Fred Miller Hofer	Min.	Marshfield	Coos
Vera Delle Horner	L. C.	Corvallis	Benton
Calvin Asa Ingle	Phar.	Wasco	Sherman
James Jones	Elec.	Suver	Polk
Paul Agnew Jones	Min.	Ontario	Malheur
Lura Amelia Keiser	H. S.	Spirit Lake, Iowa	
James Garfield Kelly	Agri.	Lents	Multnomah
Jens Lingaas	Min.	Portland	Multnomah
Oliver Porter Lumm	Elec.	Dayton	Yamhill
Isabelle Mallett	H. S.	Ontario	Malheur
Weaver Thomas Martin	Elec.	LaFayette	Yamhill
Adah McDonald	L. C.	Woodburn	Marion
Ralph Waldo McNeill	Elec.	Portland	Multnomah
Lewis Wallace Metzger	Elec.	Gresham	Multnomah
Madeline Lenore Nichols	H. S.	Monroe	Benton
Jesse Earl O'Neel	Phar.	LaFayette	Yamhill
Winnie Nell Parsons	H. S.	Albany	Linn
Asa Holcolm Post	Agri.	Dayton	Yamhill
George Joseph Reiling	Min.	Parkplace	Clackamas
Leatha Leonore Rickard	H. S.	Corvallis	Benton
Leo Joseph Rosenstein	Elec.	Oregon City	Clackamas
Floyd Elba Rowland	Elec.	Shedd	Linn
Linwood Burt Russell	Phar.	Baker City	Baker
Charley Vernon Schrack	Agri.	Tangent	Linn
Royal Raymon Selleck	Elec.	Boyd	Wasco
Carl Bryant Smith	Phar.	Carson, Wash.	
Paul Herman Spillman	Agri.	Barton	Clackamas
Roger Spicer	Elec.	Antelope	Wasco
Oliver Ritchey Spires	Phar.	Myrtle Point	Coos
Carl Marion Stebinger	Elec.	Portland	Multnomah

Claude Vivian Swann	Mech.	Buena Vista	Polk
Albert Pearl Tedrow	Elec.	Monmouth	Polk
Darwin Green Thayer	Agri.	Rainier	Columbia
Lee Arden Thomas	Elec.	Huit, Wash.	
Clarence Cornelius Vincent	Agri.	Kings Valley	Benton
Bertha Estella Watrous	L. C.	Olympia, Wash.	
Mark Verne Weatherford	L. C.	Olex	Gilliam
Harold Wilkins	L. C.	Corvallis	Benton
Jessie Agnes Wilson	L. C.	Canyonville	Douglas
Alvah Asa Witzig	Elec.	Parkplace	Clackamas

JUNIORS.

Corvallis,

Name.	Course.	Postoffice.	County.
Arvid Anderson	Mech.	Albany	Linn
Walter Rawalt Baker	Elec.	Salem	Marion
Renton Kirkwood Brodie	Agri.	Lents	Multnomah
Sherman Asher Brown	Elec.	Ft. Klamath	Klamath
Carrie Buchanan	H. S.	Corvallis	Benton
Mildred Buchanan	H. S.	Corvallis	Benton
Mabel Burdette Cady	L. C.	Holbrook, Nebraska	
Lincoln Beaumont Chambers	Elec.	Kings Valley	Benton
Norris Everard Chapin	Elec.	Walla Walla, Wash.	
Conrad Cristiansen	Elec.	Toledo	Lincoln
Grace Cramer	L. C.	Holbrook, Nebraska	
Herbert Edward Cooke	Min.	Shaniko	Wasco
Burton Leigh Cunningham	Min.	Ft. Klamath	Klamath
Cleve John Currin	Agri.	Ione	Morrow
Claud Olson Davolt	Elec.	Catlin, Wash.	
Harling Davolt	Elec.	Catlin, Wash.	
Fred Noble Fox	Elec.	La Grande	Union
Benjamin Howard Greenhaw	Min.	Portland	Multnomah
John Edward Hanny	Mech.	Oregon City	Clackamas
Lora Hansell	L. C.	Corvallis	Benton
Earle Paul Harding	Phar.	Gaston	Washington
Arthur Donald Hill	Elec.	Hood River	Wasco
Clarence William Johnson	Phar.	Newberg	Yamhill
Cleo Lorena Johnson	H. S.	Corvallis	Benton
Oliver Clarence Johnson	Min.	John Day	Grant

Fred Kerr	Phar.	Corvallis	Benton
Bertha Anna King	H. S.	Corvallis	Benton
David Macmillan	Mech.	Sellwood	Multnomah
John Melhase	Min.	Ft. Klamath	Klamath
Ralph St. Claire Milln	Min.	Oregon City	Clackamas
Philip Oliver Pelland	Mech.	St. Paul	Marion
Charles Frederick Schirmer	Min.	Oregon City	Clackamas
Mary Rosa Scoggin	H. S.	Laidlaw	Crook
Thomas Roy Sleight	Mech.	Oregon City	Clackamas
Fred Lloyd Spires	Elec.	Myrtle Point	Coos
Grace Elizabeth Starr	H. S.	Bellfountain	Benton
Wilda Starr	H. S.	Albany	Linn
Alva Edward Stovall	L. C.	Philomath	Benton
Howard Weston Taber	Elec.	Sheridan	Yamhill
Bessie Mabel Tharp	L. C.	ForestGrove	Washington
Walter Robertson Waggoner	Phar.	Corvallis	Benton
Rupert Wall	Elec.	Early	Sherman
Eugene Cyrus Wiggen	Elec.	Westport	Clatsop
John Frankin Winniford	Mech.	Wren	Benton
Walter Ernest Wood	Elec.	Corvallis	Benton
David Alvis Wright	Elec.	Woodburn	Marion

SOPHOMORES.

Name.	Course.	Postoffice.	County.
Ross Brayton Adams	Mech.	Warren	Columbia
Ernest Everett Applewhite	Phar.	Roseburg	Douglas
Thomas John Autzen	Mech.	Hoquiam, Wash.	
Warren Keifer Barnell	Min.	Portland	Multnomah
Charles Irwin Barnes	Phar.	Elgin	Union
Jesse James Beaty	Mech.	Ballston	Polk
Orren Beaty	Agri.	Ballston	Polk
Charles Franklin Bendshadler	Mech.	Elgin	Union
George Henry Bendshadler	Mech.	Elgin	Union
Clifford Stuart Benson	Min.	Roseburg	Douglas
Harry George Benson	C. E.	KlamathF'lls	Klamath
Hamon Shelly Bilyeu	Min.	Athena	Umatilla
Otto Karl Blackaby	Mech.	Ontario	Malheur
William Cowan Bolton	Mech.	Portland	Multnomah

Charles Edwin Bowen	Min.	Oysterville,	Wash.
Robert Bower	Agri.	Silverton	Marion
Harry David Bowman	Mech.	Hillsboro	Washington
Philip Harrison Cale	L. C.	Albany	Linn
Edward Cleveland Calloway	Phar.	Ontario	Malheur
Fred Ward Canfield	Mech.	Ontario	Malheur
George Carmichael	L. C.	Weston	Umatilla
Ray Castle	C. E.	Vale	Malheur
Claud Franklin Chambers	L. C.	Kings Valley	Benton
Alexander Kesterson Chapman	Mech.	Grants Pass	Josephine
Philip Jodrell Cherry	Mech.	Astoria	Clatsop
Roy Ross Clark	Min.	Portland	Multnomah
Oliver Kenneth Cole	Mech.	Turner	Marion
George Albert Cross	Mech.	Dundee	Yamhill
Elmer Raymon Crowe	Mech.	Lorane	Lane
Harvy William Currin	For.	Ione	Morrow
Lillie F. Currin	H. S.	Heppner	Morrow
Linnie Currin	H. S.	Ione	Morrow
Vernon Lewis Diven	L. C.	Vale	Malheur
Leslie Louis Doane	L. C.	Sumpter	Baker
Roscoe Britton Doane	Phar.	Sumpter	Baker
James Davis Dobbin	Agri.	Union	Union
George Julius Dodson	Agri.	Pendleton	Umatilla
Earl Irving Donelson	Mech.	Hillsboro	Washington
Edgar Wade Donnelly	Agri.	Richmond	Wheeler
Hamilton Keys Donnelly	C. E.	Richmond	Wheeler
Ella Belle Dunlap	Phar.	Shedds	Linn
Margaret Dunlap	Phar.	Shedds	Linn
Mildred Elanore Dyer	H. S.	Albany	Linn
Alma Ray Edwards	H. S.	Dell	Malheur
Joseph Earle Edwards	Mech.	Monroe	Benton
DeWalt Elrod	Phar.	Moro	Sherman
Alfred John Evans	L. C.	Mosier	Wasco
John Waldo Finn	Mech.	McCoy	Polk
Samuel Lane Foster	Agri.	Junction City	Lane
Walter Clayton Gagnon	Mech.	Roseburg	Douglas
Walter Carol Galloway	C. E.	Hillsboro	Washington
Joseph Allen Ganong	Phar.	Oregon City	Clackamas

Glen Kinzie Gardiner	Min.	Portland	Multnomah
Jesse Smart Gilkey	Mech.	Montesane,	Wash.
Edward Aseph Goodrich	Mech.	Lebanon	Linn
Sylvester Benjamin Hall	Agri.	Cleone	Multnomah
Frank Edward Hall	Min.	Milwaukie	Clackamas
Stanley Hammell	Phar.	Palmer	Multnomah
Ellsworth Braden Hanna	Phar.	Hood River	Wasco
Charley Sinclair Harris	Mech.	Vale	Malheur
M. Jeanette Hawley	H. S.	Wildwood	Lane
Charles Henry Hays	Agri.	Sherwood	Washington
Bessie Ruth Herbert	L. C.	Corvallis	Benton
Soren Francisco Holm	Mech.	Milwaukie	Clackamas
Alicia Pearl Horner	L. C.	Corvallis	Benton
Joseph William Howard	Phar.	Prineville	Crook
Ernest Alsworth Hudson	C. E.	Milton	Umatilla
Charles Darwin Hull	Mech.	CottageG've	Lane
Francis Clapton Jackson	Mech.	Portland	Multnomah
Elton Irwin Kelly	Mech.	Aims	Clackamas
Roscoe Verne Lake	Agri.	Corvallis	Benton
William George Lane	L. C.	Harrisburg	Linn
Marshall James Lazelle	Agri.	Oregon City	Clackamas
Charles Herbert Leonard	Mech.	Sheridan	Yamhill
Homer Clarence Leonard	L. C.	Sheridan	Yamhill
Lettitia Pearl Leonard	L. C.	Sheridan	Yamhill
Percy Albert Lockwood	C. E.	Portland	Multnomah
William E. Lowell	L. C.	Pendleton	Umatilla
James Rhea Luper	Min.	Heppner	Morrow
Fred Deininger Luse	Mech.	Portland	Multnomah
William Lester Marvis	Mech.	Oregon City	Clackamas
Edmund Samuel McElligott	Agri.	Ione	Morrow
Alice Marie McGinnis	L. C.	Moro	Sherman
Fred Marshall McHenry	L. C.	Corvallis	Benton
Robert Frank McKennon	Agri.	Alicel	Union
Liva Charles McLain	Phar.	La Grande	Union
Wayne Carl McLagan	Mech.	Tangent	Linn
Herbert Berry McLane	C. E.	Lyons	Linn
Elmer Metzger	Min.	Gresham	Multnomah
Frank Roland Miller	Phar.	Corvallis	Benton

Robert Bruce Miller	L. C.	Amity	Yamhill
Charles Langelle Moore	Mech.	Salem	Marion
George Allen Nelson	Agri.	Scappoose	Washington
Jud Oviatt	L. C.	Buell	Polk
May Oviatt	H. S.	Buell	Polk
Charles Taylor Parker	C. E.	Salem	Marion
Jesse Jason Peddicord	Min.	Portland	Multnomah
Cleva Peery	H. S.	McMinnville	Yamhill
Lois Lucinda Pratt	H. S.	Mound City, Missouri	
Roy Wilber Price	C. E.	Scappoose	Columbia
Ralph Elmer Reynolds	Agri.	La Grande	Union
Philip Cooper Rinehart	Phar.	The Dalles	Wasco
Fred Whitney Robertson	Mech.	Waucoma, Iowa	
Robert Henry Rodgers	Mech.	Portland	Multnomah
Charles Lawrence Rogers	Phar.	Astoria	Clatsop
Modesta Rosendorf	L. C.	Corvallis	Benton
Edna Mae Russ	H.S.	Ashland	Jackson
Adolph Harry Schmidt	C.E.	The Dalles	Wasco
Alfred Schoel	Phar.	Albany	Linn
Arthur Byron Smith	Mech.	Newberg	Yamhill
Frank Leroy Smith	Agri.	Corvallis	Benton
Neil Triston Smith	Mech.	Burns	Harney
Claude Bates Sprague	Agri.	Oregon City	Clackamas
Helen Maude Sprague	H. S.	Oregon City	Clackamas
Marie Rita Staehr	L. C.	ForestGrove	Washington
Cedric Hiram Stone	Agri.	Cleone	Multnomah
Louis Hubbard Stone	For.	Cleone	Multnomah
John Curtis Strebin	C. E.	Troutdale	Multnomah
Durland Orville Taggart	Mech.	Vale	Malheur
Owen Hancock Test	C. E.	Ontario	Malheur
Ralph Kinfield Thompson	C. E.	Heppner	Morrow
Ina Content True	L. C.	Mason City, Iowa	
Roy Clarke True	Mech.	Mason City, Iowa	
Evans Craig Varner	Mech.	Marx	Tillamook
Pearl Vincent	H. S.	Corvallis	Benton
John Oscar Vines	Mech.	Vale	Malheur
Homer Stacy Wall	C. E.	Early	Sherman
Alma Gertrude Watson	H. S.	Centralia, Wash.	

Charles Adam Watts	C. E.	Vancouver, Wash.	
Clarence Theodore West	Mech.	Rock Creek	Gilliam
Clyde Everett Williamson	L. C.	Albany	Linn
Martha Delilah Winniford	H. S.	Wren	Benton
Ernest Rowland Woods	L. C.	Albany	Linn
Ralph William Worstell	Mech.	La Grande	Union
Charles Edwin Zeiger	Agri.	Montclair, New Jersey	
Peter Chris Zimmerman	Mech.	Portland	Multnomah

FRESHMEN.

Name.	Course.	Postoffice.	County.
Thomas Sidney Abbott	Min.	Corvallis	Benton
Gustave Abraham	L. C.	Albany	Linn
Myrtle Leah Akins	L. C.	Portland	Multnomah
Elvera Allen	H. S.	Hood River	Wasco
Everett Edward Allen	L. C.	MyrtleCreek	Douglas
Hazel Allen	H. S.	MyrtleCreek	Douglas
William Cawston Allen	Mech.	Portland	Multnomah
Harrison Courteney Ames	Mech.	Sweet Home	Linn
Harry Leon Andrews	Mech.	Portland	Multnomah
Guy Moses Aupperle	L. C.	Jefferson	Marion
Bert Cleveland Baker	Mech.	GrassValley	Sherman
Clara Blanche Baker	L. C.	Corvallis	Benton
Harold Cannon Barchus	Mech.	Portland	Multnomah
Delle May Baldwin	L. C.	Corvallis	Benton
Charles Earnest Barber	Phar.	Richland	Baker
Ira Ellis Barrett	Phar.	Hillsboro	Washington
Hallie Barzee	L. C.	Moro	Sherman
Grace Monernia Bath	H. S.	Hillsboro	Washington
Franklin Richard Becker	Mech.	Philomath	Benton
Harold Wilson Bell	Mech.	The Dalles	Wasco
Sadie Bell	H. S.	Beaver City, Nebraska	
Roy Mervin Benson	Mech.	Univ. Park	Multnomah
Henry Ludwig Bergman	Mech.	Gardiner	Douglas
Albert Francis Bernard	Mech.	Beaverton	Washington
Everett Monroe Billings	Mech.	Union	Union
Louis Eugene Billings	Phar.	Union	Union
George Hiram Blackmun	Phar.	Woodburn	Marion

Arthur Stephen Blanchard	Mech.	Sumpter	Baker
Jessie Eva Bodle	H. S.	Portland	Multnomah
William Doherty Bollons	C. E.	Portland	Multnomah
Louis Hobart Booth	Mech.	Mount Hood	Wasco
Benton Bowers	Agri.	Ashland	Jackson
Leroy Breithaupt	Agri.	Clackamas	Clackamas
Elmer Clay Brock	L. C.	Hood River	Wasco
Frank Ray Brown	Agri.	Camas, Wash.	
Elmer Clarence Buchanan	Mech.	Corvallis	Benton
Arthur William Burton	Phar.	San Francisco, Cal.	
Lessie Pearl Bush	H. S.	Hoskins	Benton
Harry Palmer Cady	Mech.	Holbrook, Nebraska	
Ralph Harlan Cady	Phar.	Holbrook, Nebraska	
Anda Clarence Calvert	Agri.	JunctionCity	Lane
Hazel Louise Carlson	H. S.	St. Johns	Multnomah
Emil Elmo Carroll	Phar.	Union	Union
William Robert Carter	C. E.	Clatskanie	Columbia
Edith Hazel Casteel	L. C.	Yaquina	Lincoln
Collie Flint Cathey	Agri.	Woodburn	Marion
Alice Marie Cathey	Phar.	Woodburn	Marion
Ralph Orin Caves	Agri.	Hoskins	Benton
William Robb Chalmers	Mech.	ForestGrove	Washington
Vera Leahnor Chambers	Phar.	Corvallis	Benton
Donald Winthrop Chapman	Min.	Troutdale	Multnomah
Sherman Alban Chappell	Phar.	Corvallis	Benton
Maribel Whitman Cheney	H. S.	Milwaukie	Clackamas
Bessie Irene Chipman	L. C.	The Dalles	Wasco
Bliss Lucine Clark	Agri.	Hood River	Wasco
John Clark	Mech.	Alicel	Union
Allan Henry Collette	Phar.	Univ. Park	Multnomah
Donald Louis Colvig	L. C.	Jacksonville	Jackson
Frank Wood Connell	Agri.	Hillsboro	Washington
Grace Elizabeth Connell	H. S.	Hillsboro	Washington
Robert Alvin Cook	Mech.	Albany	Linn
Laura Cottrell	L. C.	Portland	Multnomah
Bertha Leona Cramer	L. C.	Corvallis	Benton
Otheo Glenn Crawford	Agri.	Heppner	Morrow
Wren Clark Crews	C. E.	KlamathF'lls	Klamath

Charles Francis Cropp	Phar.	Baker City	Baker
Frank Elsworth Cross	C. E.	Hebo	Tillamook
Homer Morton Cross	Agri.	Hebo	Tillamook
Howard Cushman Cunningham	C. E.	Ft. Klamath	Klamath
Nettie Elsie Currin	H. S.	Heppner	Morrow
Amy Cyrus	H. S.	Crabtree	Linn
Bessie Guss Danneman	Phar.	Clem	Gilliam
Leonard Fred Darby	Phar.	Carmen, Oklahoma	
Gertrude Luella Davidson	H. S.	Ione	Morrow
Jessie Davidson	H. S.	Ione	Morrow
Robert Leroy Davidson	Min.	Union	Union
Harold Leslie Davis	L. C.	Hoquiam, Wash.	
John Emerson Davis	L. C.	Shedds	Linn
Ada DeArmond	L. C.	Beulah	Malheur
Roy DeArmond	Phar.	Independence	Polk
Estate Leroy Dick	Mech.	Hoquiam, Wash.	
Minnie Diven	L. C.	Vale	Malheur
Ezra Stephen Dixon	Min.	ForestGrove	Washington
Maud Erben Draper	H. S.	Greenhorn	Baker
Eugene Earl Dudley	Agri.	Athena	Umatilla
Mary Lillian Earnest	H. S.	Vernon	Lincoln
Belle Bertie Edwards	H. S.	Bellfountain	Benton
Bertha Beulah Edwards	H. S.	Bellfountain	Benton
Velma Ethel Edwards	H. S.	Mayville	Gilliam
Henry Detlef Eisman	Agri.	Grants Pass	Josephine
Harry Evans	Min.	Bourne	Baker
Fred Egerton Ewart	Mech.	Portland	Multnomah
Georgia Virginia Ewing	H. S.	Oswego	Clackamas
Karl William Farnsworth	Agri.	Heppner	Morrow
Henry Ward Farrell	Agri.	Scappoose	Columbia
Henry Pervine Fisher	Agri.	Haines	Baker
Raymond Henry Fleser	Mech.	Byron Centre, Michigan	
Russell Harrison Fleser	Mech.	Byron Centre, Michigan	
Nellie Fletcher	L. C.	McCoy	Polk
Robert Edmond Fletcher	Mech.	Ontario	Malheur
Thomas Edward Foster	Phar.	Athena	Umatilla
Ruby Fowells	H. S.	Fayette, Iowa	
Bertha Emmaline Fowles	L. C.	Mount'ndale	Washington

Henry Sidney French	Agri.	Corvallis	Benton
Carl Francis Galligan	Agri.	Hood River	Wasco
Viola Gardner	L. C.	Corvallis	Benton
Thomas Leigh Gatch	Mech.	Salem	Marion
Vincent Paul Gianella	Mech.	Honcut, California	
Beulah Gustavia Gilkey	H. S.	Montesano, Wash.	
Howard Gill	Agri.	Oregon City	Clackamas
Raymond Chase Gleason	Mech.	Sumpter	Baker
Agnes Maud Goodrich	H. S.	Dayton	Yamhill
Lloyd Roscoe Goodrich	C. E.	Dayton	Yamhill
Julius Gordon	Mech.	Portland	Multnomah
Harold Roscoe Graves	Phar.	Sumpter	Baker
Greta India Gray	L. C.	Arapahoe, Nebraska	
Martin James Gribble	Mech.	Mt. Hood	Wasco
Frederick Llewellyn Griffin	Agri.	Canby	Clackamas
Kenneth Burton Grimm	Mech.	Hubbard	Marion
Meril Eugene Groshong	Phar.	Enterprise	Wallowa
Bernhard John Groth	Mech.	Dundee	Yamhill
Etta Anna Hall	H. S.	Milwaukie	Clackamas
Harry Roy Hamilton	Agri.	Bend	Crook
Roswell Hamilton	Phar.	Burns	Harney
George Mar Hanan	Min.	Roseburg	Douglas
Violet Irene Hancock	L. C.	Cove	Union
Ethel Elanora Harpole	H. S.	JunctionCity	Lane
Philo Benjamin Hawley	Agri.	Wildwood	Lane
Clyde Crawford Hayden	Mech.	Alsea	Benton
George Stephen Hayes	Mech.	Halsey	Linn
Homer Harry Hayes	L. C.	Joseph	Wallowa
Chester Walter Henkle	L. C.	Corvallis	Benton
Alice Bernice Henness	L. C.	Gates	Marion
William Albert Hensley	C. E.	Troutdale	Multnomah
Bertha Emma Herse	H. S.	Corvallis	Benton
Beulah Grace Hewitt	L. C.	JunctionCity	Lane
John Elmer Higdon	Mech.	New Castle, Colorado	
John William Hiatt	L. C.	Heppner	Morrow
Lyle Verne Hendricks	Phar.	McMinnville	Yamhill
Roy Lawrence Hoag	Mech.	Hoquiam, Wash.	
Claire Lucretia Holgate	L. C.	Baker City	Baker

Clare Conrad Hollenberg	L. C.	Stutgart, Arkansas	
Earnest Adam Holmberg	C. E.	Portland	Multnomah
Josephine Holmes	L. C.	Corvallis	Benton
Dolph Hooghkirk	Mech.	Rainier	Columbia
Charles Harry Howard	Mech.	Bridal Veil	Multnomah
Merle George Howard	Phar.	Monroe	Benton
Callie Alma Howe	L. C.	Sheridan	Yamhill
Leland Barton Howey	L. C.	Coquille	Coos
Charles Henry Hoyt	C. E.	Jefferson	Marion
Roy Alton Huber	Mech.	Scio	Linn
Floyd Jacob Huff	Phar.	Corvallis	Benton
Myra Eva Hukill	H. S.	Corvallis	Benton
Forrest Scott Ivanhoe	L. C.	La Grande	Union
Russell Samuel Jeffreys	Min.	Nome, Alaska	
Verne Lewis Johnson	L. C.	John Day	Grant
John Jacob Karstetter	Mech.	Silverton	Marion
Vera Kayler	H. S.	Molalla	Clackamas
Edythe Harriet Keady	H. S.	Corvallis	Benton
William Harrison Keady	Phar.	Corvallis	Benton
Ralph Adrian Keiser	Agri.	Spirit Lake, Iowa	
George Talburt Kelly	Min.	Greenhorn	Baker
John George Kelly, Jr.	Agri.	Eugene	Lane
Kate O'Connor Kelly	H. S.	Eugene	Lane
Lloyd Homer Kelty	Phar.	N. Yamhill	Yamhill
Eldon Wesley Kern	Min.	Portland	Multnomah
Lizzie Kester	L. C.	Sumpter	Baker
Mabel Harriette Kinnison	H. S.	Baker City	Baker
William Homer Kitchen	Min.	Sumpter	Baker
Herminia Knapp	H. S.	Ladu, Wash.	
James Koeber	Agri.	Sherwood	Washington
Worthy Aaron Lady	Mech.	Sheridan	Yamhill
Richard Landes	Mech.	Albany	Linn
Otto Carl Laue	Phar.	Portland	Multnomah
Ada Mae Lay	L. C.	Joseph	Wallowa
Myrtle Edna Lay	H. S.	Molalla	Clackamas
Roland Vivian Leep	Phar.	MyrtlePoint	Coos
John Donald Lines	Mech.	Albany	Linn
Zeph Lockwood	Min.	Helix	Umatilla

Grant Ulysess March	L. C.	Sheridan	Yamhill
Harold Dickson Marsh	L. C.	Portland	Multnomah
Arthur Blaine Mattley	Mech.	Corvallis	Benton
Siegfried Maurer	Min.	Eugene	Lane
Edythe Buhl McBride	L. C.	Athena	Umatilla
Fred Samuel McCall	Agri.	Salem	Marion
Max Adam McCall	Agri.	Scio	Linn
Nelson Felda McColl	Mech.	Gresham	Multnomah
Lillian McCready	L. C.	Suver	Polk
Russell Alfred McCully	Agri.	Joseph	Wallowa
Frederic Emmett McGrew	L.C.	Weston	Umatilla
Gertrude Elizabeth McHenry	L. C.	Corvallis	Benton
Raymond Dallas McKennon	Agri.	La Grande	Union
William Wallace McKenzie	Mech.	Portland	Multnomah
James Stewart McMahan	C. E.	Corvallis	Benton
Mabel Clare McNabb	H. S.	Ione	Morrow
Cecil Metcalf	Mech.	Portland	Multnomah
Frank Lester Michelbook	L. C.	McMinnville	Yamhill
Earl August Miebus	Mech.	Portland	Multnomah
Edyth Eleanore Miller	L. C.	Drewsey	Harney
George Henry Miller	Phar.	Corvallis	Benton
Vincent Irving Miller	Phar.	Burns	Harney
Rawla Miller	Mech.	Athena	Umatilla
Max Elbert Mitchell	C. E.	Portland	Multnomah
Kate Irene Moore	L. C.	Echo	Umatilla
Ralph Barney Moore	Mech.	North Yakima,	Wash.
Donald Fain Morgan	Mech.	Portland	Multnomah
Ira Monroe Morgan	Mech.	Ione	Morrow
John Armour Muldrick	C. E.	Canyon City	Grant
Claude Henry Murphy	Min.	Independence	Polk
Clarence Sheley Murray	C. E.	North Yakima,	Wash.
Roscoe Neal	C. E.	Baker City	Baker
Evaline Newkirk	H. S.	Oregon City	Clackamas
Ira Edward Newsome	Phar.	Rainier	Columbia
Adolph Nilsson	Agri.	Portland	Multnomah
Roy Nichols	Phar.	Portland	Multnomah
Arthur O'Connor	Mech.	Montague,	California
Howard O'Connor	Mech.	Montague,	California

Estelle Beatrice Olsen	H. S.	Warrenton	Clatsop
Ralph Foster O'Rourke	Min.	Sumpter	Baker
Glen Patterson	Mech.	The Dalles	Wasco
Jack Francis Pernot	Mech.	Corvallis	Benton
Nona Pansy Peters	Phar.	Corvallis	Benton
Ivy Cecil Peterson	L. C.	Beaverton	Washington
Henry John Pfandhoefer	Mech.	Falls City	Polk
Ralph Hillar Pierce	Mech.	Harrisburg	Linn
Bessie Evalina Pogue	H. S.	Ontario	Malheur
Ralph Victor Poindexter	Phar.	Prineville	Crook
Allyne Francis Pratt	Min.	Portland	Multnomah
Horace Minor Propst	Mech.	Albany	Linn
Irving Province	L. C.	Mitchell	Wheeler
Stanley Robert Ray	Mech.	Sedgruick,	Kansas
Marcella Elva Reed	H. S.	La Grande	Union
Nollie Frank Reed	Phar.	Burns	Harney
Jay Merritt Reynolds	Agri.	La Grande	Union
William Oscar Reith	Agri.	Astoria	Clatsop
Lester Clifford Rhodes	Min.	Parker	Polk
Elsie Mae Rice	L. C.	Clear Lake,	Iowa
Denzel Lee Ridgeway	Mech.	Buell	Polk
Katie Maysel Ridgeway	H. S.	Buell	Polk
George Rieben	Agri.	Greenville	Washington
Lillie Riggs	H. S.	Vancouver,	Wash.
Hazel Ripley	H. S.	Portland	Multnomah
Alfhild Romtvedt	H. S.	Portland	Multnomah
Henry Earle Rooper	Min.	Antelope	Wasco
John August Rooper	Agri.	Antelope	Wasco
Gordon Rosendorf	Phar.	Corvallis	Benton
Otto Harrison Schrader	C. E.	Tillamook	Tillamook
John Godfrey Schroeder	L. C.	Mt. Tabor	Multnomah
Raymond Seely	Agri.	Wilsonville	Clackamas
Wilson Alvi Sellwood	C. E.	Milwaukie	Clackamas
Henry McGee Shannon	Agri.	Union	Union
Audie Wave Shelton	L. C.	Scio	Linn
Otheo Weller Shields	L. C.	McCoy	Polk
Robie Floyd Shull	Agri.	MyrtlePoint	Coos
Earl Jackson Silva	Mech.	Rainier	Columbia

Esther Mercy Silva	L. C.	Rainier	Columbia
Georgia Anna Silva	L. C.	Rainier	Columbia
Earl Chester Simmons	Phar.	Silverton	Marion
Richard William Skibbe	C. E.	The Dalles	Wasco
Carroll Thornton Smith	Phar.	Glendale	Douglas
Roy Sorenson	Mech.	Mt. Tabor	Multnomah
Mamie Warren Sparkman	H. S.	Woodland, California	
Roy Herbert Sprague	Mech.	Oregon City	Clackamas
Edith Madeline Sproat	H. S.	Hood River	Wasco
Marion Louise Sproat	L. C.	Hood River	Wasco
Claire Weltha Starr	L. C.	JunctionCity	Lane
Clyde Everett Starr	Agri.	JunctionCity	Lane
Ruby Starr	H.S.	Albany	Linn
Stanley Stevenson	Phar.	Halsey	Linn
William Thomas Stratton	Phar.	Estacada	Clackamas
Marcus Struve	Phar.	Pendleton	Umatilla
Daniel Murry Sutherland	Agri.	Shedd	Linn
Herbert George Suttle	Agri.	Mt. Tabor	Multnomah
Samuel Pliney Sutton	Mech.	Portland	Multnomah
William Dantzler Sutton	Mech.	Portland	Multnomah
Maurice Earl Taber	Mech.	Sheridan	Yamhill
John Taylor	Phar.	North Yakima, Wash.	
Nash Taylor	L. C.	Hollister, California	
Zach Lafayette Taylor	L. C.	Corvallis	Benton
Ruth Thayer	H. S.	Rainier	Columbia
Clifford Herbert Thomas	Mech.	Dee	Wasco
Elmer Golden Thomas	For.	La Grande	Union
George Henry Thomas	Mech.	Dee	Wasco
Aura Ammarillas Thomson	H. S.	Echo	Umatilla
Frank Wilson Thompson	Min.	Lowen	Harney
Harrison Elverton Thompson	For.	Portland	Multnomah
Edwin Thornton	Phar.	Roseburg	Douglas
Jesse Almond Tiffany	Agri.	Portland	Multnomah
Carl Cliffton Titus	Mech.	Kingston	Linn
Jennie Belle Tom	L. C.	Alsea	Benton
William Roy Tompkins	Mech.	Athena	Umatilla
Oliver Todd	Agri.	Sherwood	Washington
William Alfred Toner	Mech.	Yaquina	Lincoln

Benjamin Blaine Totten	For.	Corvallis	Benton
Leighton Jesse True	Agri.	Mason City,	Iowa
Laura Van Meter	H. S.	Hoskins	Benton
Chester Andrus Vincent	C. E.	St. Johns	Multnomah
Nina May Wall	Phar.	Glendale	Douglas
Walter Walling	Mech.	Oswego	Clackamas
Edna Watkins	L. C.	Corvallis	Benton
Robert Stewart Watts	Mech.	Vancouver,	Wash.
Arthur M. Weatherford	L. C.	Dayton,	Wash.
George Ernest Whitcomb	Min.	Foster	Linn
Alfred Monroe White	Agri.	CottageGrove	Lane
Georgia Belle White	H. S.	Corvallis	Benton
Arthur Edwin Whitman	Phar.	Woodburn	Marion
Leroy Owen Wicklund	Agri.	Vale	Malheur
William Henry Wilhelm	L. C.	The Dalles	Wasco
Floyd James Williams	Mech.	Roselawn,	California
Frank Floyd Williams	Phar.	Monroe	Benton
Pearl Irene Williams	H. S.	JordanV'l'y	Malheur
Elmer Benton Williamson	L. C.	Albany	Linn
Robert Vernon Williamson	Agri.	Wells	Benton
Reuben Ernest Wills	L. C.	Heppner	Morrow
Franklin Jackson Wilson	Phar.	Canyonville	Douglas
Lena May Wilson	H. S.	New Plymouth,	Idaho
Gilbert Fayette Winslow	Min.	Oysterville,	Wash.
Ralph Withycombe	Mech.	Portland	Multnomah
Carl Wolff	Mech.	Portland	Multnomah
Mabel Evalena Wood	H. S.	Corvallis	Benton
Alfred Mason Woodruff	Agri.	Cleveland	Douglas
Richard Wright	Phar.	Athena	Umatilla
Donald Worthington Yantis	Phar.	Salem	Marion
Harvey August Yeager	Mech.	Heppner	Morrow
Cora Myrtle Yocum	H. S.	Estacada	Clackamas
Henry Roderick Zimmerman	Mech.	The Dalles	Wasco
Francis Howard Zinser	Agri.	Oregon City	Clackamas

SUB-FRESHMEN.

Name.	Postoffice.	County.
Chancie Jacob Allison	Bridal Veil	Multnomah
Charles Eric Armstrong	Corvallis	Benton
Walter McClure Babb	Maysville, Arkansas	
Mabel Mary Baker	Albany	Linn
James Linnwood Batchelder	Hillsboro	Washington
Claud Carthel Baynard	Silverton	Marion
Lloyd Vernon Bell	Mt. Tabor	Multnomah
Roy Armor Bowen	Heppner	Morrow
Claude LeRoy Boyle	St. Johns	Multnomah
Roy Edwin Brague	Towanda, Pennsylvania	
Earl Chase Brooks	Corvallis	Benton
Robert Vernon Brownell	Umatilla	Umatilla
William Burson Cate	Hillsboro	Washington
Mary Enid Cate	Hillsboro	Washington
George Henry Chamberlain	Troutdale	Multnomah
Verner Webster Chambers	Ontario	Malheur
Harry Romine Clark	Drewsey	Harney
Luther Nip Conley	Cove	Union
Benjamin Harrison Cooper	Corvallis	Benton
John Madison Copeland	Ft. Klamath	Klamath
Ralph Jeremiah Cresswell	Pendleton	Umatilla
Oral Elbert Crowe	Lorane	Lane
George Blodgett Crawford	Tallman	Linn
Ralph Crawford	Tallman	Linn
Roy Franklin Crawford	Tallman	Linn
Melville Even Davis	Vale	Malheur
Gusta DeLaunay	Comstock	Douglas
Harry Divilbliss	Gresham	Multnomah
Gertrude Alice Dorsey	Dayton	Yamhill
Clara Drinkard	Halsey	Linn
Luther Andrew Duckworth	Sumpter	Baker
Clifford Dunn	Cloverdale	Tillamook
Jesse Boyd Edington	Helix	Umatilla
Otto Herman Elmer	Mulino	Clackamas
Archie Guy Erskine	Lebanon	Linn

Jackson Kenelem Fairchild	Portland	Multnomah
Verna Sarah Farrell	Scappoose	Columbia
Nellie Martha Farrell	Scappoose	Columbia
Birdie Emaline Fletcher	Ontario	Malheur
Frank Farley Fletcher	Ellsworth, Wash.	
Eliza Josephine Floyd	Wren	Benton
Walter Allen Foster	Prineville	Crook
Dollie Fouts	Clatskanie	Columbia
Bradford Fowles	Mountaindale	Washington
Chester Newton Frakes	Salem	Marion
James Edward French	Corvallis	Benton
Fred Marion Gay	Tipton, Iowa	
William Moore Getty	Buena Vista	Polk
John Justice Golden	La Grande	Union
Frank Earl Graham	Houlton	Columbia
Fred Newton Graves	Sheridan	Yamhill
Dale Gurley	Dallas	Polk
James Harrison Haight	Little Shasta, California	
Edward Brown Haley	Hoquiam, Wash.	
Frank William Halley	Alicel	Union
Fred Eric Hansen	Kerby	Josephine
Ida Elizabeth Hansen	Kerby	Josephine
Lindon William Hanson	Portland	Multnomah
Flora Hassett	Garneill, Montana	
Herman Emil Hector	Corvallis	Benton
Edna Henness	Gates	Marion
John Everand Hiatt	Portland	Multnomah
Harry Douglas Hobson	Fox Valley	Linn
Claude Elgin Howard	Bridal Veil	Multnomah
Floyd Homer Howard	Malheur	Malheur
George Clarence Howard	Bridal Veil	Multnomah
Zoa Irwin	Estacada	Clackamas
Gladys Myrtle Jackson	Shedds	Linn
Arthur Freeman Jette	Champoeg	Marion
Leonard Johnson	Stayton	Marion
Franklin Blair Jones	Pendleton	Umatilla
John Ketels	Clackamas	Clackamas
Tommy Burling Kinnicutt	Myrtle Point	Coos

Claude Adelbert Knapp	Camas, Wash.	
Earl Victor Knapp	Ontario	Malheur
Roy Belding Knapp	Ontario	Malheur
Nellie Kurth	Portland	Multnomah
Earnest Augustus Lane	Portland	Multnomah
John Ammons Langford	Salem	Marion
Harold Bond Looney	Jefferson	Marion
Elmer Ellsworth Lyman	La Grande	Union
Frank William Mahony	Gervais	Marion
George Michael Mahony	Gervais	Marion
Mary Margaret McCall	Scio	Linn
Forrest William McGinnis	Moro	Sherman
Iva Belle McGinnis	Moro	Sherman
Lester Hawley Miles	Portland	Multnomah
Elmer Berton Mires	Cove	Union
Clyde Martin Morris	Oretown	Tillamook
Nellie Lee Nail	Hillsboro	Washington
Ivar Nelson	Ione	Morrow
Sidney O'Connor	Montague, California	
Doris Eyfelle Olsen	Warrenton	Clatsop
Earle Arney Olsen	Warrenton	Clatsop
Edna Gertrude Peck	Elgin, Illinois	
Frank Richard Pendergrass	Amity	Yamhill
John Clyde Plankington	Perrydale	Polk
Frank Edgar Porter	Pendleton	Umatilla
Philip Porter	St. Johns	Multnomah
Ralph Earl Porter	Pendleton	Umatilla
Clay Prather	Monmouth	Polk
Nash Willard Quinlan	Portland	Multnomah
Elta Marie Raber	Corvallis	Benton
Roy Rawson	Vancouver, Wash.	
Earl James Rhea	Ione	Morrow
Cecil Arleigh Russel	Elgin	Union
Anna Merle Scheurer	Butteville	Marion
Guy Adelbert Shadduck	Dayton	Yamhill
Obil Shattuck	Fort Klamath	Klamath
Victor Wright Shaw	Canyonville	Douglas
Edgar Adolf Sorenson	Harrisburg	Lane

John Wyatt Surry	Lyons	Linn
Margaret Nellie Sutherland	Shedds	Linn
Lawrence Edgar Swan	Hubbard	Marion
Nellie Taylor	Corvallis	Benton
David Sloan Thomson	Echo	Umatilla
Benjamin Garrie Thompson	Shedds	Linn
James Jay Thompson	Macleay	Marion
Joseph Tracy	Lakeview	Lake
Clifford Trask	Scio	Linn
George Robert Tripp	Hood River	Wasco
Stanley Everett Tripp	Myrtle Creek	Douglas
Albert Utzinger	Seaside	Clatsop
Emma Alvina Vick	Molalla	Clackamas
Jesse Robert Warfield	Ione	Morrow
Orin Roy West	Mt. Tabor	Multnomah
Ralph Lovell West	Westport	Clatsop
William David Winniford	Wren	Benton
Harry David Wolgamott	Suver	Polk
Ira Daniel Wonderly	Rainier	Columbia
Dorris Shelby Young	Sherwood	Washington
Norris William Young	Sherwood	Washington

SPECIALS.

Name.	Postoffice.	County.
Nihi Kanta Banerji	Calcutta, India	
Hattie Virginia Bennett	Wildwood	Lane
Hari Singh Chima	Mitranwati, India	
Emma Angeline Crabill	Baker City	Baker
Inez Munkers	Scio	Linn
Wintha Rudolph Palmer	Dallas	Polk
Laura Frances Pratt	Mound City, Missouri	
Mohammed Abdul Rashid	Aligarh, India	
Pala Singh	Dharmkota, India	
Mula Raj Soi	Batala, India	

MUSIC AND OTHER STUDIES.

Edna Grace Allen	Corvallis	Benton
Frances Imogene Gill	Scio	Linn
Jessie Esther Imbler	Enterprise	Wallowa

Blanche Jeffreys	Nome, Alaska	
Zeta Alma Johnson	Scio	Linn
Agnes Marie Langer	Sherwood	Washington
Alice Gertrude McBee	Corvallis	Benton
Emma McCann	Wilderville	Josephine
Clifford Hanley Moore	Portland	Multnomah
Loto Beulah Peck	Ione	Morrow
Helen Loretta Pelland	St. Paul	Marion
Emma Augusta Purdy	Gaston	Washington
Vena Rickard	Corvallis	Benton
Irene Brown Sproat	Hood River	Wasco
Farris Edith Stocker	Shaniko	Wasco

AGRICULTURE AND DAIRYING—SHORT COURSES.

Joseph H. Albert	Salem	Marion
E. C. Armstrong	Jefferson	Marion
Rasmus A. Anderson	Portland	Multnomah
S. D. Barney	Oregon City	Clackamas
Frank Barter	Crabtree	Linn
J. F. Barter	Crabtree	Linn
John Belloni	Coquille	Coos
Clarence S. Bowne	Aumsville	Marion
L. L. Brooks	Corvallis	Benton
G. R. Castner	Hood River	Wasco
Claus Christiansen	Toledo	Lincoln
Martin Clausen	Coquille	Coos
V. Cladek	Scio	Linn
W. A. Cladek	Scio	Linn
Alvah Custer	Coquille	Coos
Emil O. Dallenbach	Portland	Multnomah
Mrs. F. Day	Waldport	Lincoln
Joseph Edwards	Monroe	Benton
W. J. Edwards	Mayville	Gilliam
John A. Gilkey	Corvallis	Benton
A. C. Goodrich	North Yamhill	Yamhill
Ben D. Graf	Hillsboro	Washington
O. Gustafsen	Corvallis	Benton
Edward Halloway	Brownsville	Linn
Leon D. Harris	Medford	Jackson

Leonard Y. Hicks	Astoria	Clatsop
Lee Hawley Hoffman	University Park	Multnomah
William M. Hyde	Brooklyn, Iowa	
Jacob B. Kissling	Ione	Morrow
A. J. Lewis	Oregon City	Clackamas
Philip E. Linn	Estacada	Clackamas
C. E. Logsden	Corvallis	Benton
Charles Meserve	Grants Pass	Josephine
Ross E. Miller	Silverton	Marion
John McLeod	Chemawa	Marion
Fred McKendree	Klamath Falls	Klamath
Everett E. McDonald	Dayton	Yamhill
Peter Madsen	Cornelius	Washington
James B. Nunn	Dallas	Polk
Willis Oddy	Coquille	Coos
H. T. Pankey	Central Point	Jackson
Willie E. Redberg	Oretown	Tillamook
J. H. Reid	Milwaukie	Clackamas
Peter S. Rice	Mapleton	Lane
E. C. Roberts	Albany	Linn
Harold G. Rumbaugh	Albany	Linn
Lloyd Scriber	La Grande	Union
G. H. Shelton	Coquille	Coos
P. K. Skinner	Newberg	Yamhill
Alfred Smith	Coquille	Coos
Harry E. Solgard	Hillsboro	Washington
John Stewart	Victoria, B. C.	
John S. Taylor	Coquille	Coos
Joseph W. Thornberg	Astoria	Clatsop
Albert L. Weddle	Sweet Home	Linn
H. G. Wilson	Payette, Idaho	

SCHOOL OF MUSIC.

PIANO.

Name.	Postoffice.	County.
Clara Baker	Corvallis	Benton
Josephine Benham	Bellfountain	Benton
Ruby Cadle	Prineville	Crook

Vera L. Chambers	Corvallis	Benton
James R. Chambers	Kings Valley	Benton
Marion Chappell	Woodburn	Marion
Marie Cathey	Corvallis	Benton
Donald Colvig	Medford	Jackson
Jessie Davidson	Ione	Morrow
Minnie Diven	Vale	Malheur
Eythel Downer	Corvallis	Benton
Maud Erben Draper	Greenhorn	Baker
Margaret Fowells	Corvallis	Benton
Imogene Gill	Scio	Linn
Blanche Hammel	Corvallis	Benton
R. L. Hoag	Hoquiam, Wash.	
Jessie Imbler	Enterprise	Wallowa
Mary Jones	Silverton	Marion
Leta Johnson	Scio	Linn
Edith Keady	Corvallis	Benton
Agnes May Langer	Sherwood	Washington
Otto Karl Lane	Portland	Multnomah
Maud E. Litch	Enterprise	Wallowa
Emma McCann	Grants Pass	Josephine
Adah McDonald	Woodburn	Marion
Dora Mellon	Mountain Home, Idaho	
Clifford H. Moore	Portland	Multnomah
Inez Munkers	Scio	Linn
Clara Mills	Corvallis	Benton
Gertrude Nolan	Corvallis	Benton
Mrs. F. C. McReynolds	Independence	Polk
Beulah Lota Peck	Ione	Morrow
Emma Purdy	Gaston	Washington
Helen Pelland	St. Paul	Marion
Marjorie E. Richards	Farmington, N. H.	
Vena Rickard	Inavale	Benton
Edna May Russ	Ashland	Jackson
G. A. Roberts	Ashland	Jackson
Irene Sproat	Hood River	Wasco
Edith Sproat	Hood River	Wasco
Farris E. Stocker	Shaniko	Wasco

Georgia Silva	Rainier	Columbia
Esther Silva	Rainier	Columbia
Alma Watson	Centralia, Wash.	
Winona Woodward	Corvallis	Benton
Bertha Witman	Lebanon	Linn

BAND INSTRUMENTS.

(Members of the band are not classed as Music Students unless they take private lessons in this study.)

G. M. Aupperle	Jefferson	Marion
Norris Everard Chapin	Walla Walla, Wash.	
Dewalt Quinn Elrod	Moro	Sherman
Otto Karl Lane	Portland	Multnomah
Marshall J. Lazelle	Oregon City	Clackamas
John B. McKennon	Alicel	Union
Ralph Earl Porter	Pendleton	Umatilla
Roy Wilbur Price	Scappoose	Columbia
L. H. Stone	Cleone	Multnomah

VIOLIN.

Edward Everett Allen	Myrtle Creek	Douglas
Samuel Armitage	Corvallis	Benton
Thomas F. Blackledge	Corvallis	Benton
Arthur George Bouquet	Corvallis	Benton
Edward Cleveland Calloway	Ontario	Malheur
Allan Collette	Portland	Multnomah
Fred Egerton Ewart	Portland	Multnomah
Henry Sidney French	Corvallis	Benton
Frank Edward Hall	Milwaukie	Clackamas
Lyle Hendricks	McMinnville	Yamhill
Arthur Franklin Jette	Champoeg	Marion
William Homer Kitchen	Sumpter	Baker
William Lester Marrs	Oregon City	Clackamas
John McDougal	Corvallis	Benton
Henry Pfandhoefer	Falls City	Polk
Horace Minor Propst	Albany	Linn
Marie Rita Staehr	Forest Grove	Washington
Carl Marion Stebinger	Portland	Multnomah
Marcus Struve	Pendleton	Umatilla

Harrison Everdon Thompson	Portland	Multnomah
Gilbert Fayette Winslow	Oysterville, Wash.	

VOCAL MUSIC.

Gustave Abraham	Albany	Linn
Edna Grace Allen	Corvallis	Benton
John Frederick Allen	Corvallis	Benton
Ralph Wilmer Allen	Rickreall	Polk
Arthur Rex Barnett	Portland	Multnomah
Jeanette Blackledge	Corvallis	Benton
Roy Edwin Brague	Towanda, Pennsylvania	
Elmer Clay Brock	Hood River	Wasco
Ruth Cadle	Prineville	Crook
Edward Cleveland Calloway	Ontario	Malheur
Burson Cate	Hillsboro	Washington
Ralph Orin Caves	Kings Valley	Benton
George Chamberlain	Troutdale	Multnomah
Bliss Lucine Clark	Hood River	Wasco
John Jay Clark	Portland	Multnomah
Oliver Kenneth Cole	Turner	Marion
Otheo Glenn Crawford	Heppner	Morrow
Burton L. Cunningham	Ft. Klamath	Klamath
Verna Farrell	Scappoose	Columbia
Ada Finley	Junction City	Lane
Chester N. Frakes	Salem	Marion
Blanche Hammell	Corvallis	Benton
Arthur D. Hill	Hood River	Wasco
Leland B. Howey	Coquille	Coos
Ernest A. Hudson	Milton	Umatilla
James G. Kelly	Lents	Multnomah
Mary Agnes Langer	Sherwood	Washington
William E. Lowell	Pendleton	Umatilla
Fred D. Luse	Oregon City	Clackamas
William Lester Marrs	Oregon City	Clackamas
Nellie Marvin	Corvallis	Benton
Gertrude Alice McBee	Corvallis	Benton
David MacMillan	Sellwood	Multnomah
Rawla A. Miller	Athena	Umatilla

Donald Fain Morgan	Portland	Multnomah
Clifford Moore	Portland	Multnomah
Myrtle Ora Moore	Corvallis	Benton
Charles Parker	Salem	Marion
Loto Peck	Ione	Morrow
Helen Pelland	St. Paul	Marion
Marie Pelland	St. Paul	Marion
Philip Pelland	St. Paul	Marion
Edith Jane Pernot	Corvallis	Benton
Colma Marjorie Pinkerton	Corvallis	Benton
Asa Holcolm Post	Dayton	Yamhill
Roy Wilber Price	Scappoose	Columbia
Irving Province	Mitchell	Wheeler
Elta Raber	Corvallis	Benton
Marjorie Richards	Farmington, New Hampshire	
Vena Rickard	Corvallis	Benton
Faye Roadruck	Irrigon	Morrow
John Godfrey Schroeder	Portland	Multnomah
Mamie Scoggins	Laidlaw	Crook
John Seits	Corvallis	Benton
Audie Shelton	Scio	Linn
Lulu Spangler	Corvallis	Benton
Mamie Sparkman	Woodland, California	
Marie Staehr	Forest Grove	Washington
Carl M. Stebinger	Portland	Multnomah
Farris Stocker	Shaniko	Wasco
Louis C. Stone	Cleone	Multnomah
Edna May Strong	Corvallis	Benton
Darwin Greene Thayer	Rainier	Columbia
James Jay Thompson	Macleay	Marion
Jesse Tiffany	Portland	Multnomah
Rupert Wall	Early	Sherman
Alma Watson	Centralia, Wash.	
Charles A. Watts	Vancouver, Wash.	
William D. Winniford	Wren	Benton
Ralph W. Worstell	La Grande	Union
Howard Zinser	Oregon City	Clackamas

RECAPITULATION.

	Men	Women	Dept. Total	Class Total
GRADUATES	6	8		14
SENIORS—				
Mining	4		4	
Mechanical	2		2	
Electrical	19		19	
Literary Commerce	3	5	8	
Household Science		9	9	
Agricultural	13		13	
Pharmacy	9	1	10	
Special in Chemistry	1		1	
Total seniors				66
JUNIORS—				
Mechanical	6		6	
Electrical	15		15	
Mining	7		7	
Literary Commerce	1	4	5	
Household Science		7	7	
Agricultural	2		2	
Pharmacy	4		4	
Total juniors				46
SOPHOMORES—				
Mechanical	41		41	
Mining	10		10	
Literary Commerce	14	7	21	
Household Science		13	13	
Agricultural	18		18	
Pharmacy	14	2	16	
Civil Engineering	15		15	
Forestry	2		2	
Total sophomores				136
FRESHMEN—				
Mechanical	76		76	
Agricultural	47		47	
Household Science		52	52	
Literary Commerce	27	36	63	
Pharmacy	42	6	48	
Mining	20		20	
Civil Engineering	18		18	
Forestry	3		3	
Total freshmen				327
SUB-FRESHMEN	107	25		132
SPECIAL	6	18		24
SPECIAL AGRICULTURE AND DAIRYING	55	1		56
MUSIC				
Vocal	44	27		71
Piano	6	40		46
Violin	21			21
Band Instruments	9			9
STUDENTS COUNTED TWICE				948
Music—Vocal	42	18		
Piano	4	25		
Violin	17			
Band Instruments	9			
Total				115
Number of students in college	615	218		833

Students Classified by Courses of Study.

MECHANICS.		
Seniors	2	
Juniors	6	
Sophomores	41	
Freshmen	76	
ELECTRICAL ENGINEERING.		
Seniors	19	
Juniors	15	159
HOUSEHOLD SCIENCE.		
Seniors	9	
Juniors	7	
Sophomores	13	
Freshmen	52	81
AGRICULTURE.		
Seniors	13	
Juniors	2	
Sophomores	18	
Freshmen	47	80
PHARMACY.		
Seniors	10	
Juniors	4	
Sophomores	16	
Freshmen	48	78
SPECIAL IN CHEMISTRY.		
Seniors		1
LITERARY COMMERCE.		
Seniors	8	
Juniors	5	
Sophomores	21	
Freshmen	63	97
MINING.		
Seniors	4	
Juniors	7	
Sophomores	10	
Freshmen	20	41
CIVIL ENGINEERING.		
Sophomores	15	
Freshmen	18	33
FORESTRY.		
Sophomores	2	
Freshmen	3	5
GRADUATES		14
SPECIAL STUDENTS		24
SUB-FRESHMEN		132
DAIRYING & AGRICULTURE		56
MUSIC		147
GRAND TOTAL		948
COUNTED TWICE.		
Music		115
NUMBER OF STUDENTS		833

Comparative Statement of Enrollment.

Year.	*Music, Special.*	*Prepar- atory.*	*Fresh- men.*	*Sopho- mores.*	*Juniors*	*Seniors*	*Grad- uate Stu- dents.*	*Special.*	*Dairy- ing.*	*Total.*
1888-1889..	....	36	33	14	14	0	0	0	....	97
1889-1890..	....	67	55	17	6	0	6	0	....	151
1890-1891..	....	76	83	24	15	0	3	0	....	201
1891-1892..	....	86	63	28	19	9	3	0	....	208
1892-1893..	....	98	123	31	18	7	5	0	....	282
1893-1894..	....	36	103	71	21	5	4	0	....	240
1894-1895..	....	47	85	64	52	13	0	0	....	261
1895-1896..	....	80	175	63	54	9	14	2	....	397
1896-1897..	....	*Sub-*	157	80	29	17	11	22	....	316
1897-1898..	....	*Fresh-*	151	75	45	26	15	24	....	336
1898-1899..	....	*men.*	164	79	30	36	15	14	....	338
1899-1900..	....	42	145	74	40	36	20	48	....	405
1900-1901..	....	44	177	72	42	37	9	55	....	436
1901-1902..	14	38	247	83	30	38	10	28	....	488
1902-1903..	21	54	232	97	40	36	12	32	17	541
1903-1904..	48	85	191	80	46	39	3	28	10	530
1904-1905..	29	75	304	97	36	49	11	33	46	680
1905-1906..	50	110	293	104	46	49	18	37	28	735
1906-1907..	32	132	327	136	46	66	14	24	56	833

Students Classified by Counties, States and Foreign Countries.

Baker	20	Lincoln	7
Benton	115	Linn	59
Clackamas	39	Malheur	24
Clatsop	12	Marion	43
Columbia	16	Morrow	24
Coos	14	Multnomah	89
Crook	6	Polk	27
Curry	0	Sherman	9
Douglas	17	Tillamook	8
Gilliam	6	Umatilla	23
Grant	3	Union	27
Harney	7	Wasco	34
Jackson	6	Washington	35
Josephine	6	Wallowa	8
Klamath	9	Wheeler	3
Lake	1	Yamhill	30
Lane	20		

Number of counties in Oregon	33
Total number of counties represented	32
Whole number of students from Oregon	747
Arkansas	2
Alaska	2
British Columbia	1
California	9
Colorado	1
Idaho	4
Illinois	2
India	6
Iowa	19
Kansas	1
Michigan	2
Missouri	2
Montana	1
New Hampshire	1
Nebraska	9
New Jersey	1
Oklahoma	1
Pennsylvania	1
Washington	30
Total	833

ALUMNI DIRECTORY, 1907.

John Fulton, '92........................President, Corvallis, Oregon
Wm. H. Wicks, '04..............Vice President, Corvallis, Oregon
Mrs. Lucile Buxton, '05..............Secretary, Corvallis, Oregon
Mrs. Olive McKellips, '95............Treasurer, Corvallis, Oregon

1870.

James K. P. Currin, B. S., Cottage Grove, Ore.; Surveyor.

Robert M. Veatch, B. S., Cottage Grove, Ore.; Merchant; ex-Register U. S. Land Office; ex-State Senator.

Alice E. Biddle-Moreland, B. S., Healdsburg, Cal.

1871.

George F. Burkhart, B. S., Lebanon, Ore.; Farmer.

Hugh McNary Finley, A. B., Junction City, Ore.; Farming.

James D. Fountain, B. S., Portland, Ore. (255 Thirteenth Street); with Southern Pacific.

William Riley Privett, B. S.; died 1901.

Mary Harris-Whitby, B. S., Corvallis, Ore.

Fannie J. Kendall-Henkle, B. S.; died 1873.

1872.

Thomas C. Alexander, B. S.; died 1884.

John Eglen, B. S.; died 1877.

Rose Jacobs-Selling, B. S., Corvallis, Ore.

Alonzo Jacob Locke, B. S.; died 1904.

James K. Weatherford, B. S., Albany, Ore.; Attorney-at-Law; President Board of Regents, O. A. C.

1873.

Leander N. Liggett, B. S., Prineville, Ore.; Teacher.

Clara M. Thayer-Harding, B. S., Corvallis, Ore.

William Franklin Herrin, B. S., San Francisco, Cal.; Attorney-at-Law; Chief Counsel Southern Pacific Railroad, offices Flood Building.

Oscar L. Ison, B. S., Baker City, Ore.; Lawyer.

UNIVERSITY OF ILLINOIS
PRESIDENT'S OFFICE

1874.

John R. Bryson, B. S.; died 1897.
Thomas H. Crawford, B. S.
Emmett H. Taylor, B. S., Corvallis, Ore.; Dentist.
Emma Thayer-Rice, B. S.; died 1891.
George A. Grimes, Harrisburg, Ore.; Surveyor and Farmer.
William C. Crawford; died 1900.

1875.

Reuben A. Fuller, B. S., Independence, Ore.; Farmer and Teacher.
Phillip Edward Linn, B. S., Estacada, Ore.; Farmer.

1876.

Minnie M. White-Arnold, B. S., Berkeley, Cal.
Franklin Cauthorn, A. M., Portland Ore.; M. D., 1878; Surgeon.
Isaac Jacobs, B. S.; died 1879.
George P. Lent, B. S., Portland, Ore. (205½ East Morrison Street); Lawyer.
Addie M. Allen-Thompson, B. S., Seattle, Wash.
Newton A. Thompson, B. S., Seattle, Wash.; Assistant Labor Commissioner.

1878.

Laura Thompson-Booth, B. S., Newport, Ore.
Elvin J. Glass, B. S., Helena, Mont.; Section Director, U. S. Weather Bureau.
Samuel T. Jeffries, A. B., Portland, Ore.; Lawyer.
Moses S. Neugass, B. S., San Francisco, Cal. (432-434 Fourteenth Street); West Coast Furniture Manufacturing Co.
Frederick W. Vincent, B. S., Pendleton, Ore.; Physician.

1879.

Dayton Elliott, B. S.; deceased.
Marion R. Elliott, B. S., Prineville, Ore.; Lawyer.
Bartholomew T. Soden, B. S., Portland, Ore. (342 Russell Street); Merchant.
Ernest White, A. M.; died 1881.

1880.

Lillian Glass, A. B., Corvallis, Ore.; Teacher.
Edgar Grimm, B. S., Nome, Alaska; Lawyer.
Hattie M. Hanna-Hovendon, B. S., Portland, Ore.
Shubel G. McCann, A. B.; Surveyor.
William E. Yates, A. M., Vancouver, Wash.; Lawyer.

1881.

Elmer E. Charman, A. B.; died 1905.
T. Leonard Charman, B. S., Oregon City, Ore.; Druggist.
Ida Burnett-Callahan, B. S., Corvallis, Ore.; Assistant Professor English, O. A. C.
Jessie L. Taylor-Lesh, B. S.; died 1900.

1882.

Bertha Neugass-Greenberg, A. B., San Francisco, Cal. (2293 Franklin Street.)
Alice M. Horning, B. S., Mesilla Park, N. M.; Professor Domestic Science.
Eda Jacobs, A. B., Corvallis, Ore.
William Y. Masters, A. M., Portland, Ore. (675 E. Madison Street); Lawyer.
Nettie Spencer, B. S., Berlin, Germany; Teacher of English.
Abbie Wright, B. S., Portland, Ore.; Teacher.

1883.

William G. Emery, A. B., Vancouver, Wash.; Photographer.
William H. Holman, B. S., Minneapolis, Minn.; Proprietary Medicines.
George B. Hovendon, B. S., Portland, Ore.; Merchant.

1884.

Lizzie J. Bayley, A. B., Salem, Ore.; Clerk.
David H. Glass, A. B., Oregon City, Ore.; Merchant.
Isador Jacobs, A. B., Portland, Ore. (60 Third Street); Traveling Salesman.
William E. Newton, A. B.; died 1901.
Herbert G. Ray, A. B., Portland, Ore. (Third and Morrison Streets); Pharmacist.

1885.

Alonzo Allen, A. B., Portland, Ore. (Corner Sixteenth and Marshall Streets); Druggist.

Andrew S. Buchanan, B. S., New York City (16 East Twenty-third Street); Assistant Manager and Cashier New York Viavi Company.

Henrietta Harris, B. S., Portland, Ore. (560 Hoyt Street); Kindergarten Teacher.

J. E. Whitney, B. S., Portland, Ore. (243 Monroe Street); Secretary Allen & Gilbert Company.

J. Fred Yates, A. B., Corvallis, Ore.; Attorney-at-Law.

1886.

B. F. Collins, B. S.; deceased.

Frances Harris, B. S., Portland, Ore. (560 Hoyt Street); Teacher.

Harry L. Holgate, B. S., Klamath Falls, Ore.; Lawyer.

Herbert Kittredge, A. M., Eureka, Cal.; Teacher.

Minnie McFarland, B. S., Gilroy, Cal.

Dina Newton-McCoy, B. S., Oaksdale, Wash.

O. W. Robbins, B. S., Molalla, Ore.; Contractor and Builder.

Charles D. Thompson, A. B., Hood River, Ore.; Teacher and Fruit Grower; S. B., Agricultural College, Michigan.

Robert J. Wilson, B. S., New York City; Physician and Surgeon with Board of Health.

1887.

Laura Korthauer-Ireland, B. S., Whatcom, Wash. (2111 Walnut Street.)

Robert Cooper, B. S.; deceased.

1888.

Ira Allen, A. B., Portland, Ore. (Sixteenth and Hoyt Streets); Pharmacist.

James H. Collins, A. B., Clatskanie, Ore.; Teacher.

Lillie Groves, A. B., Corvallis, Ore.

William W. Hall, B. S., Salem, Ore.; Brokerage and Insurance.

Jessie Groves-Kittredge, A. B., Eureka, Cal.

Ella Jane Lilly-Mason, B. S., Oswego, Ore.
Anna Lilly-Robbins, B. S., Molalla, Ore.
Gertrude M. Davis-Strange, B. S., Corvallis, Ore.; Teacher.
Mary Newton-Slayton, B. S., Cottonwood, Idaho.
William S. Stock, B. S., Portland, Ore. (Blumauer-Frank Drug Company); Manufacturing Chemist.

1889.

John C. Applewhite, B. S., Tacoma, Wash.; Lawyer.
Clarence Avery, B. S., Bigham Springs, Ore.; Lawyer.
Harry Lea Arnold, B. S., Manila, P. I.; United States Army.
John Buchanan, B. S., Inavale, Benton County, Ore.; Farmer.
Robert G. Buchanan, B. S.; died 1892.
Bertha Davis, B. S., Corvallis, Ore.
Clara Irvine-Hembree, B. S., McMinnville, Ore.; Teacher.
Thomas A. Jones, B. S., Corvallis, Ore.; County Surveyor; Pharmacist.
Emma Webber-Irish, Mt. Clemens, Mich. (267 S. Gratiot Ave.)
Emma Kittredge-Mahoney, B. S., San Francisco, Cal. (808 Van Ness Avenue.)
Clara Fisher-Rands, B. S., Oregon City, Ore.
Mollie Fisher-Thompson, B. S., Los Angeles, Cal. (2410 Trinity Street).
Jesse Wilkins, B. S.; died 1898.
E. E. Wilson, B. S., Corvallis, Ore.; Attorney-at-Law; Secretary Board of Regents, O. A. C.

1890.

A. Sidney Additon, B. S., Oakland, Cal.; Metallurgist.
M. Boyd Hamilton, B. S., Portland, Ore. (532 Williams Ave.); Physician and Surgeon.
May Warren-Woodward, B. S., Philomath, Ore.
C. Otto Wells, B. S.; died 1895.

1891.

Anna Allen-Kuyzenga, B. S., Portland, Ore.
Joseph F. Alexander, B. S., Portland, Ore.; D. D. S.; Professor Portland Dental College.

John Henry Starr, B. S., Junction City, Ore.; Deputy Head Consul, M. W. A.

1892.

Ida M. Ray-Brandes, B. L., Portland, Ore. (252 Eleventh St.)
Anna Mary Denman, B. L., Corvallis, Ore.; Teacher.
Nellie M. Davidson, B. H. E., Fossil, Ore.; B. L., '93; Teacher
Lulu Chandler-Eppinger, B. H. E., Baker City, Ore.
John Fulton, B. S., Corvallis, Ore.; S. B., 1903, Harvard; Associate Professor of Chemistry, O. A. C.
Mattie Avery-Fulton, B. L., Corvallis, Ore.
Nellie M. Hogue, B. H. E., Klamath, Ore.
Rose M. Horton-Irwin, B. L.
Charles Leslie Johnson, B. S., Corvallis, Ore.; Assistant Professor Mathematics, O. A. C.
Leon Louis-Hayward, B. S., Victoria, B. C.
Minnie Waggoner-Lilly, B. L., La Grande, Union County, Ore.
Barney S. Martin, B. S. A., Brownsville, Ore.; Lawyer.
James W. Storms, B. S. A., Kansas; Teacher.
Richard W. Scott, B. S. A., Corvallis, Ore.; Farmer.
Marie Lois Stewart, B. S., Baker City, Ore.; Teacher.

1893.

Lee Applewhite, B. S. A., St. Louis, Mo.; Physician.
Brady Burnett, B. S. A., Corvallis, Ore.; Superintendent City Water Works.
George W. Denman, B. S., Corvallis, Ore.; County School Superintendent.
Ross Finley, B. S. A., Ely, Nevada; B. S., 1894; Assayer Nevada C. C. Co.
Hortense F. Greffoz, B. H. E., Portland, Ore. (788 East Salmon Street); B. L., 1895; Teacher in Portland Public School.
W. Scott Goodall, B. S. A., La Grande, Ore.; Real Estate.
Erma Laurence-Jones, B. H. E., Oregon City, Ore.
Altha Leach, B. H. E., Heppner, Ore.; Milliner.
Horace Lilly, B. M. E., McMinnville, Ore.; Salesman.
Percival Nash, B. S. A., San Francisco, Cal.; Literary Work.
George Walter Palmer, B. M. E., Baker City, Ore.; Jeweler.

Ora Spangler-Porter, B. H. E., Oregon City, Ore.

Norman J. Rowan, B. S. A., Geiser, Ore.; Master Mechanic, Empire Mining Company.

Anna S. Sansom, B. H. E., Portland, Ore. (105 E. Nineteenth Street).

Leolin L. Swann, B. S. A., Albany, Ore.; Attorney-at-Law.

Hattie Bronson Sibley, B. H. E., Dallas, Ore.

Mary C. Voorhees, B. H. E., Portland, Ore.; Assistant Portland Public Library.

1894.

David P. Adamson, B. S. A., Prineville, Ore.; B. S., 1895; Druggist.

Mark Baily Bump, B. S. A., Hillsboro, Ore.; Lawyer.

Charles S. Chandler, B. S. A., San Francisco, Cal. (530 California Street); B. S. 1895; Attorney-at-Law.

Sarah A. Currier, B. H. E., Corvallis, Ore.

Henry M. Desborough, B. M. E., Dawson, Y. T., Canada; Gold Mining.

Edward Getty Emmett, B. M. E., Ionia, Mich.; Draftsman and Machinist, Pere Marquette Railroad Company.

Delia Elizabeth Gellatly-Dentler, B. H. E., San Francisco, Cal.

Ina Vivia Gould, B. H. E., Newberg, Ore.; Teacher.

James H. Gibson, B. S., Portland, Ore.; Attorney-at-Law.

W. Frank Holman, B. M. E., Albany, Ore. (R. F. D. No. 4); B. S., 1895; Farmer.

Luna George-Looney, B. H. E., Jefferson, Ore.

Jennie M. Gellatly-Palmer, B. H. E., Baker City, Ore.

Frank Josephine Parsons, B. H. E., Mayville, Ore.; Teacher.

Hattie Friendly-Rosenbaum, B. H. E., Salt Lake, Utah.

Evelyn Maud Currier-Scott, B. H. E., Corvallis, Ore.

Alice Lettie Wicks, B. H. E., Hemet, Riverside County, Cal.; Teacher.

1895.

James Edward Adamson, B. S. A.

John F. Allen, B. M. E., Corvallis, Ore.; Pharmacist; Member of Firm of Allen & Woodward.

Thomas Beall, B. S. A.; died 1904.

Clara Duncan-Baker, B. H. E., Trenton, Mo.

Adda M. Bristow, B. H. E., Portland, Ore.; Teacher.

Lulu C. Thornton-Brown, B. H. E., Farmington, Cal.

Janie Newton-Brown, B. H. E., Oaksdale, Wash.

Austin T. Buxton, B. M. E., Forest Grove, Ore.; Farmer; Master Oregon State Grange; Member Board of Regents, O. A. C.

Lucie Brandon-Chamberlain, B. H. E., Athena, Ore.

Frederick C. Caples, B. S., Waukasha, Wis.; Miner.

Inez Cooley-Carpenter, B. H. E., Bakersfield, Cal.

Seth L. Casto, B. S. A., Portland, Ore.; Express Messenger.

Edwin R. Doughty, B. S. A., Lind, Wash.; B. S. 1896; Pharmacist.

Frank E. Edwards, B. M. E.; M. S., 1906; Instructor of Chemistry and Military Tactics, O. A. C.

Lena Willis-Froggatt, B. H. E., Portland, Ore. (188 North Twenty-third Street).

Minnie L. Hodes-Denman, B. H. E., Corvallis, Ore.

Edna Finley, B. H. E., Corvallis, Ore.; Teacher in Corvallis School.

Anna Hannah, B. H. E., Baker City, Ore. (2437 Auburn Ave.); Bookkeeper.

Alice Buchanan-Herron, B. H. E.; deceased.

Helen L. Holgate, B. H. E., Corvallis, Ore.; Stenographer and Instructor in O. A. C.

Delphena L. Haenel, B. H. E., Junction City, Ore.; Teacher.

Verna Keady-Brewer, B. H. E., Portland, Ore. (1355 Garfield Avenue.)

Elsie Long-Irion; died 1904.

Andrew B. Kidder, B. S. A., Sheridan, Ore.; Railway Mail Service.

William B. Lacy, B. S. A., Portland, Ore. (1231 Hawthorne Avenue); Salesman.

Lester M. Leland, B. S. A., Portland, Ore. (29 East Twenty-seventh Street); Railway Postal Clerk.

Arthur Clay Lewis, B. M. E., Klamath Falls, Ore.; Merchant.

Louise Leuenberger-McDonald, B. M. E., Spokane, Wash.

Olive Hamilton-McKellips, B. H. E., Corvallis, Ore.

A. D. Morrison, B. S. A.; B. S., 1896, Carlton, Ore.; Physician and Surgeon.

Amelia M. McCune, B. H. E., Shedd, Ore.; Farmer.

Kate B. McCune, B. H. E., Shedd, Ore.; Farmer.

Dorothea Nash, B. H. E., Portland, Ore.; Teacher of Music.

Lewis W. Oren, B. M. E., Portland, Ore.; Postal Clerk.

William D. Porter, B. S. A., Shedd, Ore.; Farmer.

Samuel P. Smith, B. S. A., Cando, N. D.; Veterinary Surgeon.

Mary E. Stout-Mulkey, B. H. E., Portland, Ore. (511 Roselawn Avenue.)

Willard W. Smith, B. M. E., La Grande, Ore.; Physician.

Milton O. Stemmler, B. S. A., St. Louis, Mo.; Physician.

Mary Smith-Streumeyer, B. H. E., Astoria, Ore.

W. Claude Williams, B. M. E., McMinnville, Ore.; Hardware Salesman.

Effie Willis, B. H. E., Dillard, Ore.; Teacher.

Kittie Ruth Emmitt-Von Pessl, B. H. E., Melrose, Ore.

Milton A. Wyatt, B. S. A., Corvallis, Ore.; Farmer.

Henrietta Campbell-Wilson, B. H. E., Albany, Ore.

Mary Henderson-Valencia, B. H. E., Santa Cruz, Cal. (354 Pacific Avenue.)

Kate Buchanan-Veatch, B. H. E., Cottage Grove, Ore.; B. L. '96.

1896.

Ida Ward-Allingham, B. H. E., Albany, Ore.

Lyman B. Andrews, B. S. A., Portland, Ore.; Clerk, Y. M. C. A.

Julia Augusta Casto-Andrews, B. H. E., Portland, Ore. (1145 East Alder Street.)

Lulu Lindsay-Atwood, B. H. E., Spicer, Ore.

Louisa Maude Barnett, B. H. E., Oswego, Ore.; B. L., 1897; Teacher.

Lee Beal, B. S. A., Lakeview, Ore.; Druggist.

Walter H. Becker, B. S. A., Odessa, Wash.; Hardware and Implement Dealer.

Sheldon C. Brown, B. S. A., Sunnyside, Wash. (R. F. D. No. 2); B. S., 1898; Farmer.

E. Arthur Buchanan, B. M. E., Corvallis, Ore.; Farmer.
Lewis E. Cooper, B. S. A.; died 1898.
Mattie Wright-Davidson, B. H. E., Portland, Ore.
Lizzie A. Wyatt-Elliott, Perrydale, Ore.; Postmaster.
Herbert M. Friendly, B. M. E., Portland, Ore. (187 Sixteenth Street); Electrician with Pacific States Telegraph & Telephone Company.
Marion R. Johnson, B. S. A., Portland, Ore. (Sellwood Station); Deputy Clerk Circuit Court.
Mary Buoy-Gerking, B. H. E., Pendleton, Ore.
Bessie Barker-Harrison, B. H. E., Portland, Ore. (550 Fifth Street.)
William F. Keady, B. M. E., Portland, Ore.
Harry W. Kelly, B. S. A., The Dalles, Ore.; Dental Student.
Emma Warrior-Kerr, B. H. E., Corvallis, Ore.
William T. Lee, B. S. A., Hanford, Cal.; Farmer.
Edith Lilly-Casto, B. H. E., Portland, Ore.
Carrie Alberta Lyford, B. H. E., Lansing Mich.; B. L., 1897; Instructor Household Economy, State Agricultural College.
Bertie Linville-Morrison, B. H. E., Carlton, Ore.
Joseph Granger McCune, B. S. A., Albion, Wash.; Teacher.
Gertrude E. Mackay-Masterson, B. H. E., Astoria, Ore.
Emery J. Newton, B. S. A., Corvallis, Ore.; County Recorder.
Charles L. Owsley, B. M. E., La Grande, Ore.; Stockman.
Clyde M. Phillips, B. M. E., Corvallis, Ore.; Instructor Mechanical Drawing and Iron Work, O. A. C.
Charles G. Porter, B. M. E., Corvallis, Ore.; Salesman.
Mildred Linville-Patterson, B. H. E., Baker City, Ore.
Edwina M. Avery-Powell, B. H. E., Salem, Ore.
Gordon C. Ray, B. M. E., Grass Valley, Cal.
Martin L. Spangler, B. M. E., San Francisco, Cal.; Engineer.
Lilly M. Read, B. H. E., Culver, Ore.; Teacher.
V. Esther Simmons, B. H. E., Huron, Cal.; Teacher.
Joseph C. Smith, B. S. A., Corvallis, Ore.; Farmer.
Josie Moses-Trask, B. H. E., Falls City, Ore.
Henry H. Veatch, B. S. A., Cottage Grove, Ore.; Hardware Merchant.

Minnie A. Wilson, B. H. E., New York City.
Marion F. Wood, B. S. A., Tangent, Ore.; Farmer.
Arthur W. Wood, B. M. E., California.

1897.

Ina Barclay-Bryan, B. H. E., Ontario, Ore.
Clarence L. Bump, B. M. E., Forest Grove, Ore.; Teacher.
Herbert J. Elliott, B. M. E., Perrydale, Ore.; Miller.
Robert E. Golden, B. M. E., Portland, Ore.; Physician.
Frank William Groves, B. M. E., Corvallis, Ore.
J. Wallace Harrison, B. M. E.; died 1905.
Edwin J. Hufford, B. S. A., Portland, Ore. (228 Sherman Street); B. S., 1898; Bank Clerk.
William Thomas Johnson, B. S. A., St. Louis, Mo.; Student Marion-Sims Medical College.
Emma Martyn-Merchant, B. H. E., Portland, Ore. (789 East Thirty-third Street.)
Harvey L. McAlister, B. S. A., Lexington, Ore.; Farmer.
Charles R. Porter, B. M. E., Grass Valley, Ore.; Merchant.
William H. Schmidt, B. S. A., San Francico, Cal; Merchant.
Charles E. Small, B. M. E., Corvallis, Ore.; Merchant.
Charles Otis Taylor, B. M. E., Halsey, Ore.; Farmer.
Ralph W. Terrell, B. M. E., Roseburg, Ore.; Clerk.

1898.

David Henry Bodine, B. S., Albany, Ore.; Farmer.
Frank H. Crawford, B. S.; deceased.
Thomas Chester Colt, B. S., Longmount, Colo.; Chemist with Kilby Manufacturing Company.
John Robert Cooley, B. S., Brownsville, Ore.; Secretary Eagle Woolen Mills.
Frank Sitton Fendall, B. S., Seattle, Wash.; Engineer.
Mary Edna Groves, B. H. S., Corvallis, Ore.
Edith H. Gibson, B. H. S., Portland, Ore.; Music Teacher.
William J. Gilstrap, B. S., M. D., Sheridan, Ore.; Physician and Surgeon.
Hulda Holden-Guild, B. H. S., San Francisco, Cal.; Teacher.
Georgie Eleanor Hartless, B. H. S., Drewsey, Ore.; Teacher.

Lionel Alexander Johnson, B. S., Portland, Ore.; Special Correspondent, Oregonian.

Erwin J. Lea, B. S., Aiea, Oahu, Honolulu Territory; M. S., 1900; Chemist.

Emma D. Beach-Lingo, B. H. S., Sellwood, Ore. (612 Multnomah Avenue.)

Colista Margaret Murray, B. H. S., Portland, Ore. (746 East Yamhill Street); Artist.

Charles F. McKnight, B. S., Marshfield, Ore.; Lawyer.

Sarah E. Morrison, B. H. E., Olympia, Wash.; Teacher.

George L. Plummer, B. S., Elko, Nev.; Merchant.

Arthur J. Stimpson, B. S., Portland, Ore. (739 East Yamhill Street); Postal Railway Clerk.

Myrtle Shonkwiler, B. H. S., Portland, Ore.; Teacher.

Laura Cauthorn-Smith, B. H. S., Corvallis, Ore.

Dennis H. Stovall, B. S., Grant's Pass, Ore.; Story Writer.

Ena Mabel Kyle-Swingle, B. H. S., Pendleton, Ore.

Jesse A. Tharp, B. S., Portland, Ore.; Engineer.

Nettie Lyle Gellatly-Thayer, B. H. S., Astoria, Ore.

George E. Weaver, B. S., San Francisco, Cal. (14 Sansome Street); Lawyer.

Dora Porter-White, Lewiston, Idaho.

1899.

Leona Smith-Ainslie, B. H. S.; died 1903.

John G. Aldrich, B. S., North Yakima, Wash.; Hotel Clerk.

W. H. Beach, B. S., Oregon City, Ore.; Foreman Spooling Department, Oregon City Woolen Mills.

Harry Beard, B. S., Corvallis, Ore.; Teacher, Band Leader, O. A. C.

Ella M. Casto, B. H. S., Park Place, Ore.; Teacher.

Cleora Wells-Colt, B. H. S., Summerville, Ore.

Jessie V. Cox-Cooley, B. H. S., Brownsville, Ore.

Fred Allan Edwards, B. S., Mayville, Ore.; Farmer.

Robert Gellatly, B. S., Philomath, Ore.; Diversified Farming.

Rosalie Greffoz, B. H. S., Portland, Ore.; Bookkeeper.

Fanny Getty, B. H. S., Baker City, Ore.; Teacher.

R. Henry Howell, B. S., Toledo, Ore.; Engineer.

Jesse Huffman, B. S., Portland, Ore.; Architect.
Mary Jones, B. H. S., Silverton, Ore.; Teacher.
Alice Josephine Kidder-Kutch, B. H. S., Carlton, Ore.; B. S. '00.
Lyle Laurence-Levinger, B. H. S., Baker City, Ore.
Genevieve Lyford, B. H. S., Hawarden, Ia.; Kindergarten Teacher in Public School.
Horace McBride, B. S., Mayville, Ore.; Farmer.
Idella Florence McBride-Mershon, B. H. S., Cleone, Ore.
Frankie Cauthorn-McIntire, B. H. S., Nanton, Alberta.
Robert McKee, B. S., Salem, Ore.; Farmer.
Leslie Walter Murray, B. S., Philadelphia, Pa. (2807 N. Ninth Street); Structural Steel Draftsman, Minnitt & Company, 1026 Ridge Avenue.
Woodson L. Patterson, B. S., Baker City, Ore.; Lawyer.
Loren T. Powers, B. S., Wallowa, Ore.; Farmer.
Esther Madeline Purdy, B. H. S., Corvallis, Ore.
Hubert A. Scoggin, B. S., Tumalo, Ore.; Farmer.
Nolan Smith, B. S., Monterey, Cal; Forgemaster Q. M. Dept., U. S. A.
Minnie Leona Burnett-Wiley, B. H. S., Portland, Ore.
James C. G. Van Groos, B. S., Portland, Ore. (1298 E. Taylor Street); Postal Railway Clerk.
John Van Groos, B. S., Portland, Ore.; Professor of Mathematics in Portland Academy.
Mabel Cora Davis-Walker, B. H. S., Portland, Ore.; B. S., 1901.
Clara Lane-Woodcock, B. H. S., Corvallis, Ore.
Arthur Roy Woodcock, B. S., Corvallis, Ore.; M. S., 1901; Bank Clerk.

1900.

Walter Carleton Abrams, B. S., Salem, Ore.; Statesman Reporter.
Edwin Burton Aldrich, B. S., Fossil, Ore.; Clerk.
Arthur Julius Bier, B. S., Portland, Ore.; Mechanic.
Harry Edward Buxton, B. S., Corvallis, Ore.; Planing Mill.
Minnie Maud Buxton, B. S., Portland, Ore.; Trained Nurse.
Reuben Davisson Burgess, B. S., Toledo, Ore.; Physician.
William Ray Dilley, B. S., Little Falls, Wash.; General Manager

Stillwater Lumber Co.

Letitia Ownbey-Dupuy, B. S., Oregon City, Ore.

James Grant Elgin, B. S., Corvallis, Ore.; ex-County Recorder; Harness Maker.

Arthur Homer Frazier, B. S., Pendleton, Ore.; with the O. R. & N. Railroad Company.

Joseph Gilbert Garrow, B. S., Hazel Creek, Cal.; Lumberman.

Wilbur William Garrow, B. S., McCloud, Cal.; Hotel Proprietor.

John Hubert Gallagher, B. S., Houghton, Mich.

Joyce Lillian Hershner, B. S., Condon, Ore.; Teacher.

Garlin Hill, B. S., Independence, Ore.

Edwin Scott Harris, B. S., Elgin, Ore.; Pharmacist.

Meldora Jackson, B. S., Hoskins, Ore.; Teacher.

Herbert Eugene Junkin, B. S., Portland, Ore. (735 Bush Street); Clerk, O. R. & N. Company.

Fred Kruse, B. S., Marshfield, Ore.

Aubert Leavens, B. S., Portland, Ore. (512 Albina).

Florence Maxfield, B. S., Corvallis, Ore.; Teacher.

John Elmer McBride, B. S., Shedds, Ore.; Teacher.

James Cowing McCaustland, B. S., Spokane, Wash.; Manager, Land Department, Hay Brothers.

Leigh Alonzo Noel, B. S., Gardner, Ore.; Farmer.

Thomas Edward Palmer, B. S., San Francisco, Cal. (929 O'Farrell Street); Collector, Tesla Coal Company, Tenth and Channel Streets.

Hugh Elmer Penland, B. S., Berkeley, Cal.; Physician.

Inez Fuller-Pfeifer, B. S., Portland, Ore.

Elsie Mathilde Rueter, B. S., Portland, Ore.; Stenographer and Bookkeeper.

Lillian Ada Ranney, B. S., Corvallis, Ore.; Student in Music.

Charles Alfred Saunders, B. S., Oakland, Cal. (1161 E. Fifteenth Street); Machinist, Pacific Steel & Wire Company, East Oakland.

Mira Eva Starr, B. S., Corvallis, Ore.

Etta Agnes Smith-Taylor, B. S., Corvallis, Ore.

Fred Cecil Walters, B. S., Elmira, Lane County, Ore.; Lumberman.

Glenn Winslow, B. S., Pendleton, Ore.; Jeweler.

1901.

Myrtle Herbert-Billings, B. S., Ashland, Ore.
Lizzie Hoover-Bowerman, B. S., Condon, Ore.
Ivan C. Brown, B. S., Portland, Ore.; Railway Postal Clerk.
Ivy Grace Burton, B. S., Independence, Ore.; Teacher.
Alfred Campbell, B. S., Ballston, Ore.; Farmer.
Mabel Lenore Jones-Cannon, B. S., Salem, Ore.
Fred LeRoy Colvig, B. S., Grants Pass, Ore.; Druggist.
Carrie Agnes Danneman, B. S., Corvallis, Ore.
Ethel Kyle-Hall, Schenectady, N. Y. (1016 Albany Street.)
Stanley Darle Herbert, B. S., Whitney, Ore.; Civil Engineer with Sumpter Valley Railroad Company.
William Bennett Hillman, B. S., North Yakima, Wash.; Electrical Engineer.
Esther Blanche Holden, B. S., Oregon City, Ore.; Teacher.
Charles Herbert Horner, B. S., Condon, Ore.; Deputy Postmaster.
Martin Luther Johnson, B. S., Portland, Ore. (635 East Ninth Street.)
William Sumner Junkin, B. S., Portland, Ore.; Lineman.
Leo J. Kraps, B. S., Los Banos, Cal.; Engineer.
Ethel Blond Kyle-Hall, B. S., Schenectady, N. Y. (1016 Albany Street.)
Bessie Lea Michael, B. S., Portland, Ore.; Stenographer.
William L. Pate, B. S., Shedds, Ore.; Farmer.
Maude Hoover-Portwood, Condon, Ore.
Ernest Winfield Redd, B. S., Portland, Ore.; Druggist.
Blanche Eglantine Riddle, Riddle, Ore.; Teacher.
Edgar Raymond Shepard, B. S., Boston, Mass.
Flora Wilson-Smick, B. S., Canyonville, Ore.
Bessie Gertrude Smith, B. S., Salem, Ore.
Fred Newton Stump, B. S., Suver, Ore.
John Louis Stalker, B. S., Carson, Ore.
Henrietta Campbell-Van Groos, B. S., Portland, Ore. (1298 East Taylor Street.)
Frank S. Ward, B. S., Salem, Ore. (101 Commercial Street);
Grace Michael-Wallace, B. S., Rochester, N. Y. (165 East Ave.)
John Thomas Wiley, B. S., Portland, Ore.

Marcus Clyde Williams, B. S., Independence, Ore.; Druggist.

Mabel Withycombe, B. S., Corvallis, Ore.

Thomas Robert Withycombe, B. S., Union, Ore.; Assistant in Eastern Oregon Experiment Station.

1902.

Ina Pearl Allen, B. S., McMinnville, Ore.; Teacher.

Augustus M. Alspaugh, B. S., Eagle Creek, Ore.; Timekeeper for Winters, Parson & Boomer, Railroad Contractors.

Frances Edna Belknap, B. S., Corvallis, Ore.; Teacher in Public School.

Ralph Billings, B. S., Ashland, Ore.; Farmer.

Marion Forrest Bridges, B. S., Schenectady, N. Y.; Designing Engineer, General Electric Company.

Thomas Bilyeu, B. S., Portland, Ore.; Contractor and Designer.

Rena Jane Garrett-Fischer, Marcola, Ore.

Wilford Edmond Hanley, B. S., Hillsboro, Ore.; Farmer.

Fred Chauncey Houston, B. S.; died 1904.

Roy P. Howard, B. S., Ann Arbor, Mich; Student, University of Michigan.

Chester W. Laughlin, B. S., Grays River, Wash.; Clerk.

Noble William Leadbetter, B. S., Portland, Ore.; Machinist, American Tool Works.

Harry Lindon Lusted, B. S., Gresham, Ore.; Farmer.

Kirby Alexander MacLean, B. S., Phoenix, Ariz.; Civil Engineer with Arizona Southern Railroad.

Gertrude Ewing-McElfresh, B. S., Portland, Ore. (696 Irving Street.)

Alexander Edward McGillivray, B. S., Portland, Ore. (459 Durham Avenue); Manager Woodlawn Drug Co.

Christal Miner, B. S.; deceased.

Leroy Garfield Mattley, B. S.; deceased.

Maud Mattley, B. S., Corvallis, Ore.; Teacher.

Edward Rosendorf, B. S.; died 1904.

Ethel F. Smith, B. S., Salem, Ore.; Druggist.

Malinda Alice Small, B. S., Hammond, Ore.; Teacher.

Victor C. Spencer, B. S., Corvallis, Ore.; Druggist.

Elizabeth Ney St. Germain, B. S., Gordon, Wash.; Teacher.

Maud Sturgeon, B. S., Estacada, Ore.; Pharmacist.

John Eliphalet Smith, B. S., Salem, Ore.; Teacher, Salem High School.

Orla Thompson-Stimpson, B. S., Portland, Ore. (739 East Yamhill Street.)

James Franklin Scott, B. S., Tangent, Ore.

Fred Steiwer, B. S., Eugene, Ore.; Bank Clerk.

George Harris Thompson, B. S., Macleay, Ore.; Farmer.

Herman Vance Tartar, B. S., Portland, Ore.; Chemist with Woodard Clark Co.

Arthur Edgar Tully, B. S., Wallowa, Ore.; Dairyman.

William Van Groos, B. S., San Francisco, Cal.

Edith Slayton Howard-Zurcher, B. S., Roseburg, Ore.

1903.

Mabel Maud Abbe, B. S., Des Moines, Iowa; Student Drake University.

Clauda Leola Anderson, B. S., Lents, Ore.; Teacher.

Edith Jane Berthold-Buchanan, B. S., Corvallis, Ore.

Edward Benjamin Beaty, B. S., Hoquiam, Wash.; Principal High School.

Samuel Lewie Burnaugh. B. S., Enterprise, Ore.; Druggist; Real Estate.

Claude Buchanan, B. S., Corvallis, Ore.; Farmer.

Leolene Rosamond Chipman, B. S., Corvallis, Ore.; Compositor.

Laura Lillian Chipman, B. S., Portland, Ore.; Milliner.

Elsie May Canfield-Ferch, Le Mars, Iowa.

Viola Ethel Johnson-Dickerson, B. S., Vale, Ore.

Ada Eudora Finley, B. S., Corvallis, Ore.; Teacher.

Albert David Gerking, B. S., Stayton, Ore.; Farmer.

Beulah Harden-Gerking, B. S., Stayton, Ore.

Alice Odalite Horning, B. S., Silver Lake, Ore.

Grace Whiteman-Hansen, B. S., Albany, Ore.

William David Jamison, B. S., Portland, Ore. (446 East Everett Street) ; Electrician.

John Edwin Johnson, B. S., Vale, Ore.; Agent Eastern Oregon Land Co.

Lillian Johnson, B. S., Vale, Ore.

Sibyl Alice Cummings-Laughlin, Grays River, Wash.

Byram Mayfield, B. S., Enterprise, Ore.; Pharmacist.

Effie Laurie Michael, B. S., Portland, Ore.

Floyd Francis Millhollen, Portland, Ore. (574 First Street); Druggist.

Joseph Paulson, B. S., Atlanta, Ga.; Engineer, Westinghouse Electric and Manufacturing Co.

Harvey Pugh, B. S., Shedds, Ore.; Farmer.

Emma Imogen Rusk, B. S., Portland, Ore.

Ida Mae Smith, B. S., Salem, Ore.; Teacher.

Minnie Grace Smith, B. S., Latourell Falls, Ore.; Teacher.

Irving Melville Underwood, B. S., Grass Valley, Ore.; Farmer.

Ethel Eleanor Linville-Weeks, B. S., La Grande, Ore.

Walter Stanley Wells, B. S., Ely, Nev.; Druggist.

Elmer Gifford Wicklund, B. S., Caldwell, Idaho.; Nurseryman.

1904.

Meigs William Bartmess, B. S., Pittsburg, Pa.; with Westinghouse Electric Co.

Clarence Warner Beaver, B. S., San Francisco, Cal.; Chemist.

Horace Carpenter Brodie, B. S., Montesano, Wash.; Stenographer.

John Charles Burns, B. S., Cleone, Ore.; Farmer.

John William Buster, B. S., Eugene, Ore.; Druggist.

Carrie Ann Byerlee, B. S., Portland Ore.; Assistant Children's Home.

Etta Belle Carter, B. S., Albany, Ore.; Teacher.

Claude Clifton Cate, B. S., Corvallis, Ore.

Jesse Claude Clark, B. S., Portland, Ore.; with Y. M. C. A.

Maude Elizabeth Cochran, B. S., Aurora, Ore.; Teacher.

Percy Alfred Cupper, B. S., Salem, Ore.; Office Assistant State Engineer.

Thomas Willard Espy, B. S., Berkeley, Cal.; Student.

Albert Sidney Hall, B. S., Schenectady, N. Y.; with General Electric Co.

Edna Blanche Hershner, B. S., Lents, Ore.; Teacher.

Ernst Hinrichs, B. S., Schenectady, N. Y.; with General Electric Works.

Dave Hirstel, B. S., Portland, Ore.; Contractor and Designer.
Alva Otis Horton, B. S., Prineville, Ore.; Druggist.
Etta Fuller Howard, B. S., Prineville, Ore.
John Ransom Howard, B. S., Prineville, Ore.
Elmer Polic Jackson, B. S., Whiting, Ind.; Instructor Manual Training School.
Lucy Dilly-Johnson, B. S., Vale, Ore.
Guy Erwin Moore, B. S., Chicago, Ill.; Student.
Chester Lloyd Proebstel, B. S., Portland, Ore. (1061 East Main Street); Mining Engineer.
Inez St. Germain-Proebstel, B. S., Portland, Ore. (1061 East Main Street.)
Jackson Carle Rinehart, B. S., Portland, Ore.; with Portland General Electric Co.
Juanita Rosendorf, B. S., Corvallis, Ore.; College Stenographer, O. A. C.
Alice Leena Rusk, B. S., California.
Teroah Winfield Scott, B. S., Manila.; Lieutenant Philippine Constabulary.
Claiborne Lockley Shepard, B. S.; died 1906.
Cecil Vivian Staats, B. S., St. Louis, Mo.; Medical Student.
Mary Elizabeth Sutherland, B. S., Corvallis, Ore.; Instructor Dressmaking, O. A. C.
Albert Sidney Weels, B. S., Portland, Ore.; Mining.
Isabel Harris Whitby, B. S.; died 1906.
William Hale Wicks, B. S., M. S. 1906, Corvallis, Ore.; Assistant Horticulturist, O. A. C.
John Thomas Witty, B. S., Shoshone, Idaho; Druggist.

1905.

Wiliam Gustave Abraham, B. S., Schenectady, N. Y.; Electrical Works.
Percival Lysander Adams, B. S., Boston, Mass.; Student.
George Anthon Anderson, B. S., Palo Alto, Cal.; Student Stanford University.
William Henry Beaty, B. S., Schenectady, N. Y.; Electrical Wks.
Albert Burton Bower, B. S., Schenectady, N. Y.; Electrical Works.

Maude Roberts-Brodie, B. S., Montesano, Wash.
Lucile Roberts-Buxton, B. S., Corvallis, Ore.
John Will Carlson, B. S., Schenectady, N. Y.; Electrical Works.
Mary Cecil Danneman, B. S., Corvallis, Ore.; Bookkeeper.
Henry Clay Darby, B. S. Eugene, Ore.; Druggist.
Floyd Bushnell Davis, B. S., Portland, Ore.; Government Office (U. S. R. S.)
Earnest Eddy, B. S., Hoskins, Ore.
Lura Lovene Flett, B. S., Corvallis, Ore.; Stenographer.
Harry Lee Fryer, B. S., Carlton, Ore.; Farmer.
Theodore Alexander Garrow, B. S., Ithaca, N. Y.; Student Cornell University.
Leroy Harlon, B. S., Boise, Idaho; Secretary Y. M. C. A.
Albert Louis Henning, B. S.; died 1905.
Joseph Clare Henkle, B. S., Schenectady, N. Y.; Electrical Wks.
Georgia Ellen Herbert, B. S., Corvallis, Ore.; Teacher.
Violet Philendia Herbert, B. S., Corvallis, Ore.
Fred Austin Hills, B. S., Portland Ore.
Alice Jones, B. S., Alicel, Ore.; Teacher.
Bert Trew Jordan, B. S., Albany, Ore.; Druggist.
Mabelle Bee Keady, B. S., Corvallis, Ore.
Charles Edward MacLean, B. S., Roosevelt, Arizona; Engineer, Government Employ.
John Rhoderick M. McCormick, B. S., San Francisco, Cal.; Mechanic.
Mark Dow McCallister, B. S., Corvallis, Ore.; Instructor in Woodwork, O. A. C.
Alice Wicklund-McLeod, B. S., New York City.
Edna Smith-Montgomery, B. S., Grants Pass, Ore.
Merrill Bruce Moores, B. S., Ithaca, N. Y.; Student Cornell University.
Guy Sherwood Moore, B. S., Eugene, Ore.
Edna Marie Osburn, B. S., Corvallis, Ore.
Bert Pilkington, B. S., Portland Ore.; Chemist with Oregon Dairy and Food Commission.
Delbert Waldorf Proebstel, B. S., Schenectady, N. Y.; Electrical Works.

Hazel Blanche Raber, B. S., Corvallis, Ore.; Stenographer.

Harvey Earle Rinehart, B. S., Portland, Ore.; with Portland General Electric Co.

Ralph Curtis Shepard, B. S., Salem, Ore.; Farmer.

Otto Gerald Simpson, B. S., Suver, Ore.; Farmer.

Nellie Vernon Skelton, B. S., Hoquiam, Wash.; Instructor in High School.

Karl Steiwer, B. S.,; Lieutenant U. S. A., Philippine Islands.

Frederick Charles Stimson, B. S., Prineville, Ore.; Druggist.

Francis Marion Stokes, B. S., Portland, Ore.

Ray Lewis Stout, B. S., Portland, Ore.

John Smith Tannock, B. S., Schenectady, N. Y.; Electrical Wks.

Lena Belle Tartar, B. S., Corvallis, Ore.; Teacher in Public School.

Leone Charlotte Weber, B. S., Portland, Ore.; Drug Clerk, Lipman, Wolfe & Co.

Otto Adam Weber, B. S., Portland, Ore.; Druggist.

Ira Parker Whitney, B. S., Pullman, Wash.; Instructor in Agricultural College.

Floyd Alexander Williams, B. S., Lieutenant U. S. A., Philippine Islands.

Bessie Margaret Yates, B. S., Vancouver, Wash.; Stenographer.

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Fred Adams, B. S., Roseburg, Ore.; Pharmacist.

Harry Benjamin Auld, B. S., Corvallis, Ore.; Benton County Abstract Co.

Miles Bebee Belden, B. S., Sumpter, Ore.; Head Assayer, Oregon Smelting & Refining Co.

Arthur Edward Belknap, B. S.; died 1907.

Ethel Berman, Corvallis, Ore.; Clerk.

Arthur George B. Boquet, B. S., Corvallis, Ore.; Assistant in Floriculture, O. A. C.

Alfred Leroy Bradley, B. S., Schenectady, N. Y.; Testing Department, General Electric Works.

Archibald Eugene Burns, B. S., Portland, Ore.; with Pacific States Telephone Co.

Grover Cleveland Cate, B. S., Hillsboro, Ore.; Farmer.

Alice Leora Edwards, B. S., Monroe, Ore.; Teacher.
Joel Emily, B. S., Portland, Ore.; Shipping Clerk, Fairbanks-Morse Co.
Fred Clark Ewing, B. S., Corvallis, Ore.; Assistant Zoological Department, O. A. C.
Julia Fuller, B. S., Corvallis, Ore.; Clerk.
Arthur Amos Garrett, B. S., Anaconda, Col.; Mining.
Philip Gearhart, B. S., Portland, Ore.; Machinists' Mfg. Agency.
Frances Violet Gellatley, B. S., Corvallis, Ore.; Clerk.
Howard Clayton Getz, B. S., Elane, Idaho; Mining.
Mertie Harrington, B. S., Corvallis, Ore.; Teacher.
Earl Vincent Hawley, B. S., Corvallis, Ore.; Instructor Electrical Department, O. A. C.
Maggie Maude Hays, B. S., Tangent, Ore.; Teacher.
Annie Laura Hill, B. S., Corvallis, Ore.
Mary Alicia Hill, B. S., Hubbard, Ore.; Teacher.
Walter Ralph Horton, B. S., Portland, Ore.; Gen. Elec. Co.
Rose Mildred Ingram, B. S., Monroe, Ore.; Postmaster.
Robert Combs Jackson, B. S., Medford, Ore.; Orchardist.
William Robert Jones, B. S., Big Elk, Ore.; Teacher.
John Carl Knapp, B. S., Portland, Ore.; Pharmacist.
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Cyrus Ross McCormick, B. S., Carson City, Nev.; Asst. Assayer.
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Sarah Stella Parsons, B. S., Council, Idaho; Teacher.
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Elmer Philander Rawson, B. S., Tacoma, Wash.; Assistant State Secretary Washington Y. M. C. A.
Joseph Lucine Ringo, B. S., Eagle, Ore.; Draftsman, Railroad Engineering Corps.
Maud Graves-Ringo, B. S., Odell, Ore.
Fred Miller Roth, B. S., Yerrington, Nevada; Asst. State Mining Surveyor.
William Amile Schoel, B. S., Portland, Ore.; General Electric Co.
Ralph Edward Smith, B. S., Twin Falls, Idaho.
Wallace Atwood Thompson, B. S., Echo, Ore.; Farmer.
Archie Clifford Van Cleve, B. S., Manila, Philippines; Auditor's Office.

Agnes von der Hellen, B. S., Welten, Ore.; Teacher.
Walter Eakin Wade, B. S., Wallowa, Ore.
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Bessie Hart Wilson, B. S., Canyonville, Ore.; Teacher.
Walter Asa Winniford, B. S., Kings Valley, Ore.; Teacher.

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TEXT-BOOKS.

Agriculture—
- Book on Drainage, Miles.
- Brooks' Agriculture, Vols. I, II and III.
- Cattle Breeding, Warfield.
- Feeding of Animals, Jordan.
- Feeds and Feeding, Henry.
- Horses, Cattle, Sheep and Swine, Curtis.
- Irrigation and Farming, Wilcox.
- Manual of Cattle Feeding, Armsby.
- Physics of Agriculture, King.
- Soil, King.
- Stock Feeding, Stewart.
- Study of Breeds, Shaw.
- Types of Farm Animals, Plumbe.
- Veterinary Studies, Reynolds.

Bacteriology—
- Essentials of Bacteriology, Ball.

Botany—
- Histology—Atkins, College Botany; Coulter, Plant Structures; Strassburger, Practical Botany.
- Morphology and Ecology — Leavitt, Outlines.
  - Coulter, Plant Relations.
  - Bergen, Foundations.
  - Systematic Botany, Howell.
- Physiology—Sorauer, McDougal, Green
- Physiology, Laboratory—Ganong, Mcdougal.

Chemistry—
- Agricultural Chemistry, Johnson.
- Crooke's Select Methods.
- Engineering Chemistry, Blount and Bloxan.
- Food Inspection and Analysis, Leach.
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- Microscopy of Vegetable Foods, Winton
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- Stillman Engineering Chemistry.
- Sutton's Volumetric Analysis.
- Technology of Paint and Varnish, Savin
- Thorpe's Dictionary of Applied Chemistry.
- Wiley's Principles of Applied Chemistry
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  - Dairy Chemistry, Snyder.
  - Milk and Its Products, Wing.
- Elocution—
  - Evolution of Expression, Emerson.
  - Steps to Oratory, Townsend.
- English and Literature—
  - American Literature, Abernethy.
  - Composition,—Rhetoric, Brooks and Hubbard.
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  - Elementary English Composition, Huber, Gray, Buehler.
  - Kimball's Business Speller.
  - Baldwin's College Manual of Rhetoric
  - English Grammar, Whitney.
  - English Literature, Newcomer.

German—
- Collar-Eysenbach's German Grammar.
- Mueller and Wenckebach's Gluck Auf.
- Hewett's German Reader.
- Bronson's Colloquial German.
- Mosher's Willkommen in Deutschland.
- Jagemann's German Syntax.
- Selections from Modern prose works, Schiller's and Lessing's Dramas.
- Brandt and Day Scientific German Reader.

History—
- General History, Myers (Two Volume Edition).
- U. S. History—Essentials in American History, Hart.

Horticulture—
- Principles of Fruit Growing, Bailey.
- Plant Breeding, Bailey.
- Principles of Plant Culture, Goff.
- The Survival of the Unlike, Bailey.

Household Science—
- Aesthetics, Day.
- Ethics of Marriage, Pomeroy;
- Home Nursing, Harrison.
- Household Science, Helen Campbell.

Latin—
- Aeneid, Greenough and Kittredge.
- Allen & Greenough's Latin Grammar.
- Caesar—Books I and II, Allen and Greenough.
- Cicero's Orations, Allen and Greenough.
- First Year Latin, Collar and Daniel.
- Literary Commerce—
- Modern Book-keeping, Montgomery.
- Commercial Law, Richardson.

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- Algebra—Advanced, Hawks.
- Algebra—Essentials of, Wells.
- Analytic Geometry—Plane and Solid, Ashton.
- Arithmetic—The New Business, Powers and Lyon.

Astronomy—Elementary, Young.
Calculus—Differential and Integral, Nichols.
Contracts and Specifications, Johnson.
Geometry—Plane and Solid, (Revised Edition), Wentworth.
Geometry—Plane and Solid, Shutts.
Highway Construction, Baker.
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Mining—A Manual of, Ihlsing.
Railroads—Searles, Webb.
Roofs and Bridges—Merriman and Jacoby.
Sanitary Engineering—Folwell.
Surveying—Johnson, Merriman and Brooks, Pence and Ketchem.
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Mechanical and Electrical Engineering—
Alternating Current Machines, Sheldon and Mason.
Elements of Electrical Engineering, Steinmetz.
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High School Physics, Carhart & Chute.
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Technical Mechanics, Edward R. Maurer.
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Mental and Political Science—
Essentials of Psychology, Buell.
Johnston's History of American Politics
Principles of Economics, Laughlin.

Military—
Army Regulations, U. S. A.
Constitutional Law, Cooley.
Conventional Signs and Symbols, General Staff U. S. A.
Drill Regulations of Hospital Corps, U. S. A.
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Federal Aid in Domestic Disturbances, W. D. Publication.
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Infantry Drill Regulations, U. S. A.
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Blowpipe Analysis, Moses & Parsons.
Geology, Scott.
Mining Geology, Park.

Pharmacy and Materia Medica—
King's Dispensatory.
Materia Medica, Culbreth.
Medical Chemistry, Bartley.
National Formulary.
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Practice of Pharmacy, Remington.
Quantitative Analysis, Sturmer and Vanderkleed.
The Art of Compounding, Scoville.
Treatise on Pharmacy, Caspari.
Manual of Toxicology, Brundage.
U. S. Dispensatory, Pharmacopœia, Homeopathy.

Zoology—
Animals, Jordan, Heath & Kellogg.
Bulletins and Reports, U. S. Entomologist.
Hough and Sedgwick, The Human Mechanism.
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1907-08

COLLEGE BULLETIN. ISSUED QUARTERLY. SERIES 1. NUMBER 21.

OREGON AGRICULTURAL COLLEGE

CATALOGUE

FOR

1908-1909

[Entered at the Postoffice, Corvallis, Oregon, as second-class matter]

Section of College Campus and Buildings.

CATALOGUE

OF THE

Oregon Agricultural College

FOR

1908-1909

With List of Students for 1907-1908

CORVALLIS, OREGON

PUBLISHED BY THE COLLEGE
JUNE, 1903

CALENDAR

1908

JANUARY.

S.	M.	T.	W.	T.	F.	S.
...	...	...	1	2	3	4
5	6	7	8	9	10	11
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19	20	21	22	23	24	25
26	27	28	29	30	31	...

FEBRUARY.

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MARCH.

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1909

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AUGUST.

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SEPTEMBER.

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OCTOBER.

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NOVEMBER.

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DECEMBER.

S.	M.	T.	W.	T.	F.	S.
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26	27	28	29	30	31	...

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1907-08

CALENDAR 1908-1909.

1908.

July 15, Wednesday—Annual meeting of Board of Regents.
September 25-26, Friday, Saturday—Registration days.
September 25-26, Friday, Saturday—Examinations for admission.
September 28, Monday—Recitations begin.
November 25-December 1, Wednesday noon to Tuesday—Thanksgiving recess.
December 23, Wednesday noon—Christmas vacation begins.

1909.

January 5, Tuesday—Exercises resumed.
January 5-9, Tuesday, Saturday—Farmers' week.
January 5, Tuesday—Two-weeks' course in Creamery Practice begins.
January 6, Wednesday—Meeting Board of Regents.
January 11, Monday—Winter course in Horticulture begins.
January 11, Monday—Winter course in Mechanic Arts begins.
January 11, Monday—Winter course in Domestic Science and Art begins.
January 18, Monday—Winter course in Dairying begins.
February 12, Friday—First term ends.
February 15, Monday—Second term begins.
February 22, Monday—Washington's Birthday; legal holiday.
April 8-13, Thursday noon to Tuesday—Easter recess.
May 30, Sunday—Decoration Day; legal holiday.
June 13-16, Sunday, Wednesday—Commencement week.

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Campus Foreman.

JOHN ANDERSON SPANGLER,
Foreman Power and Heating Plant.

ELLSWORTH ERWIN,
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ROBERT CLEMENT WILLS,
Carpenter.

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DEAN JULIET GREER.
DEAN JOHN ANDREW BEXELL.

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ASSISTANT PROFESSOR MARK CLYDE PHILLIPS.
LIBRARIAN IDA A. KIDDER.

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*On leave of absence.

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1908-1909.

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3. *Engineering and Mechanic Arts.*—Professors Covell, Skelton, Parks, Gardner.

4. *Commerce.*—Professors Bexell, Crawford, Mr. Mathre.

5. *Attendance.*—Professors McAlexander, Fulton, Phillips.

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7. *College Extension.*—Professors Withycombe, Bexell, Dryden, Greer, Lake.

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9. *Dormitories.*—Professors Bexell, Greer, Mr. Hetzel, Mr. Cooke, Mr. Brodie.

10. *Schedules.*—Professors Fulton, Phillips, Mr. Bridwell, Miss Van Liew, Mr. Hyslop, Mr. Mathre.

11. *Athletics.*—Professors Angell, Johnson, Cordley, McAlexander, McKellips.

12. *Student Societies.*—Mr. Hetzel, Mr. Baldwin, Miss Williams.

13. *Social Entertainments.*—Professors Bradley, Gaskins, McLouth, Callahan, Miss Williams, Miss Ewing.

EXPERIMENT STATION STAFF.

WILLIAM JASPER KERR,
PRESIDENT.

JAMES WITHYCOMBE,
DIRECTOR,
Animal Husbandman.

ARTHUR BURTON CORDLEY,
Entomologist.

EDWARD RALPH LAKE,
Botanist.

CLAUDE ISAAC LEWIS,
Horticulturist.

FRED LEROY KENT,
Dairyman.

EMILE FRANCIS PERNOT,
Bacteriologist.

JAMES DRYDEN,
Poultry Husbandman.

HENRY DESBOROUGH SCUDDER,
Agronomist.

CHARLES EDWARD BRADLEY,
Chemist.

JOHN COLBURN BRIDWELL,
Assistant Entomologist.

CHARLES ARTHUR COLE,
Assistant Horticulturist.

ERWINE L. POTTER,
Assistant Animal Husbandman.

ARTHUR L. PECK,
Floriculturist and Landscape Gardener.

GEORGE ROBERT HYSLOP,
Assistant Agronomist.

ARTHUR GEORGE B. BOUQUET,*
Olericulturist.

RALPH WILMER ALLEN,
Assistant Horticulturist.

CLARENCE CORNELIUS VINCENT,
Assistant Horticulturist.

FRED CLARK EWING,
Assistant Entomologist.

CLAUDE CLIFTON CATE,
Assistant Plant Pathologist.

FRED L. GRIFFIN,
Assistant Entomologist.

LAURA HILL,
Assistant Entomologist.

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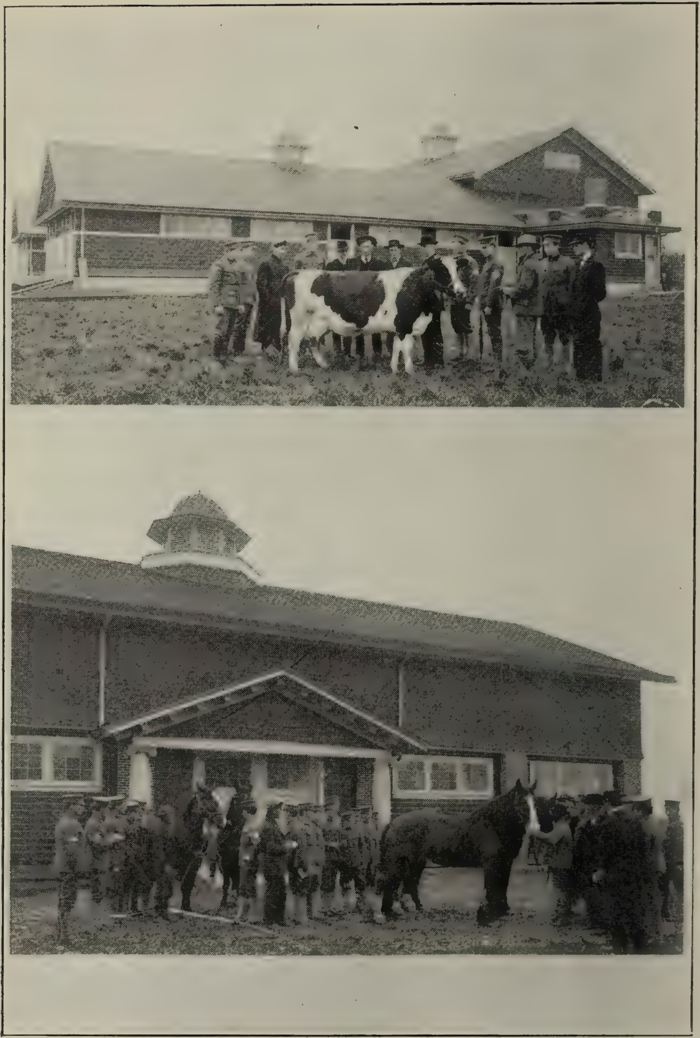
*On leave of absence.

Agricultural Hall.

Dairy Barn.

Class in Stock Judging.



Classes in Animal Husbandry.

Poultry Buildings.

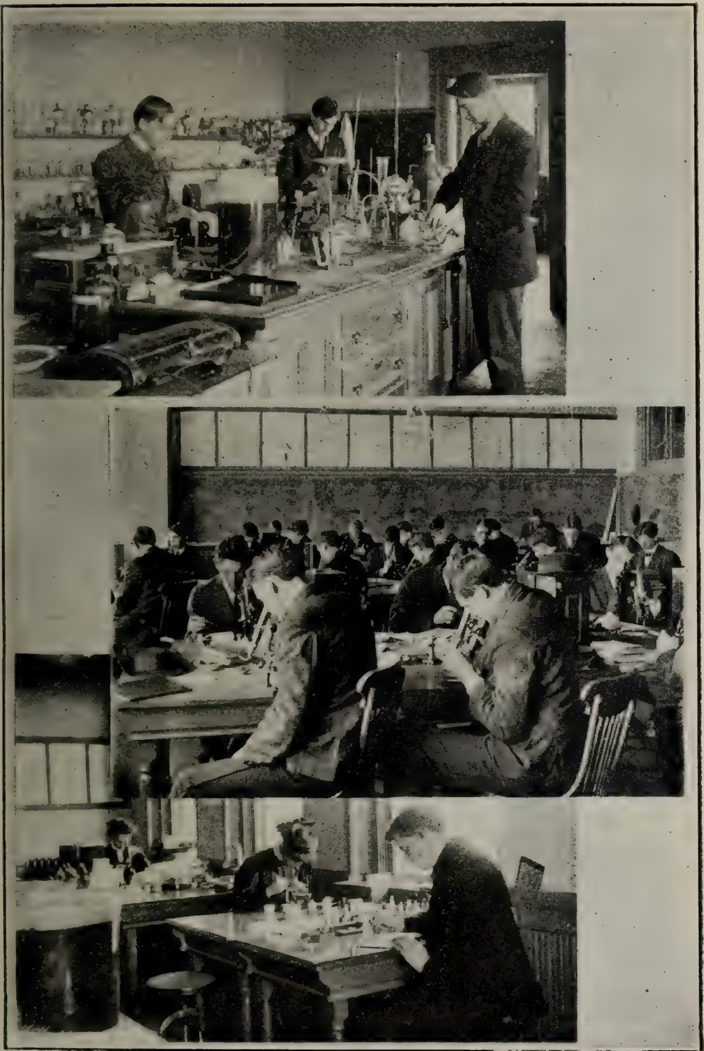
Classes in Dairying. Short Course Students in Agriculture.

Students in Agronomy—Taking Soil Samples, Testing Seeds.

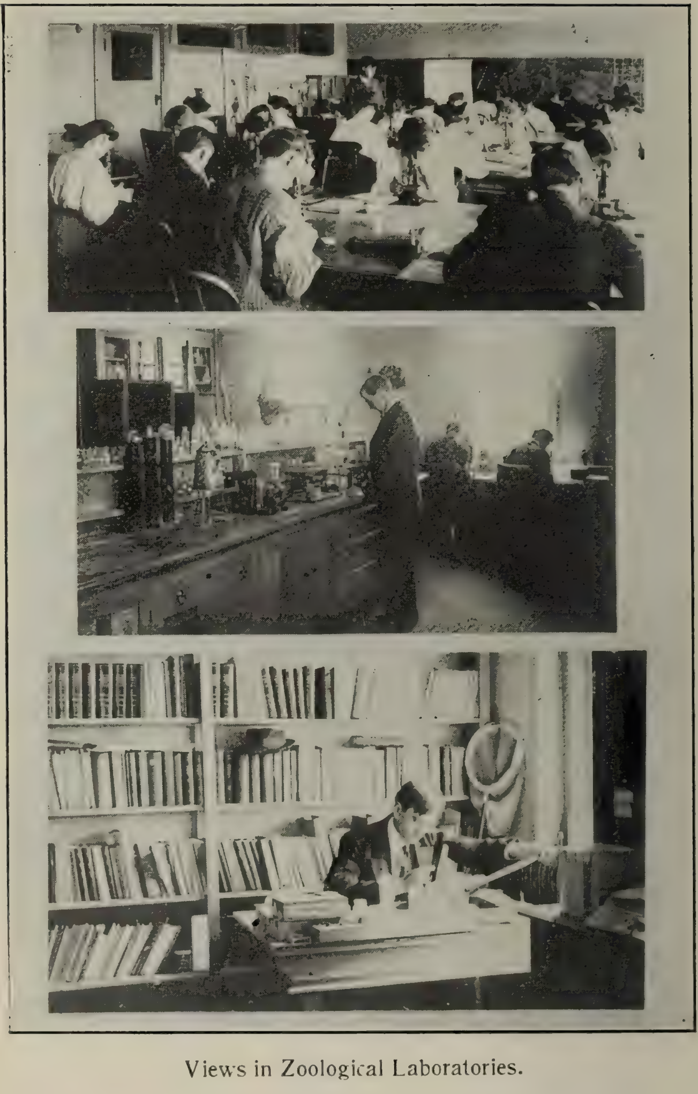
Horticultural Classes in Pruning, Grafting, Packing, Apple Harvesting.

Class in Spraying.

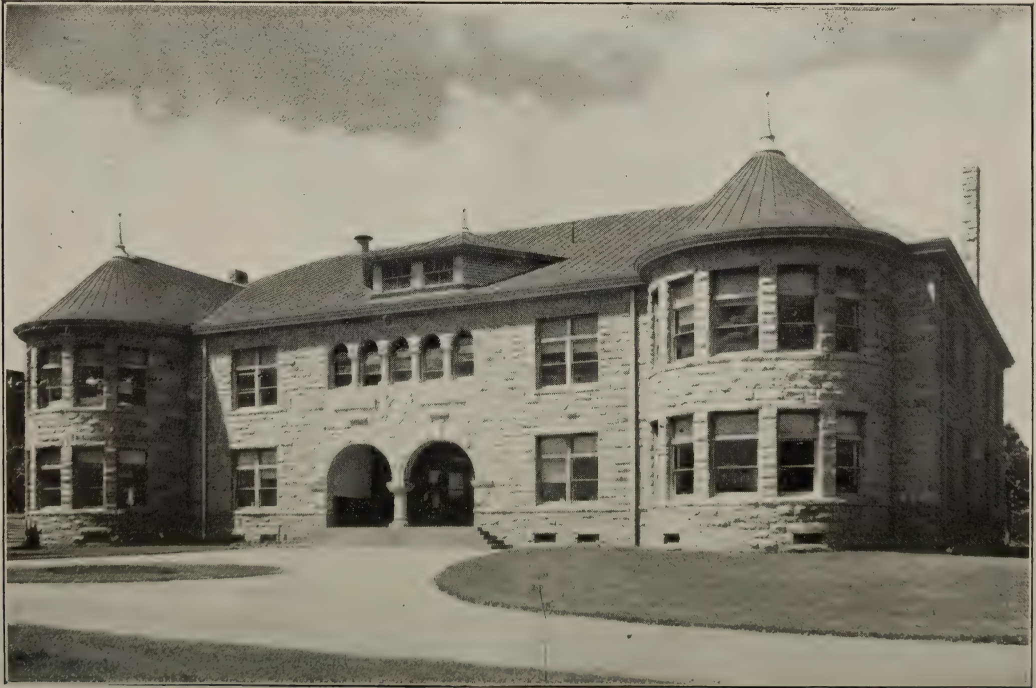
Classes in Floriculture and Gardening.



Classes in Botany.



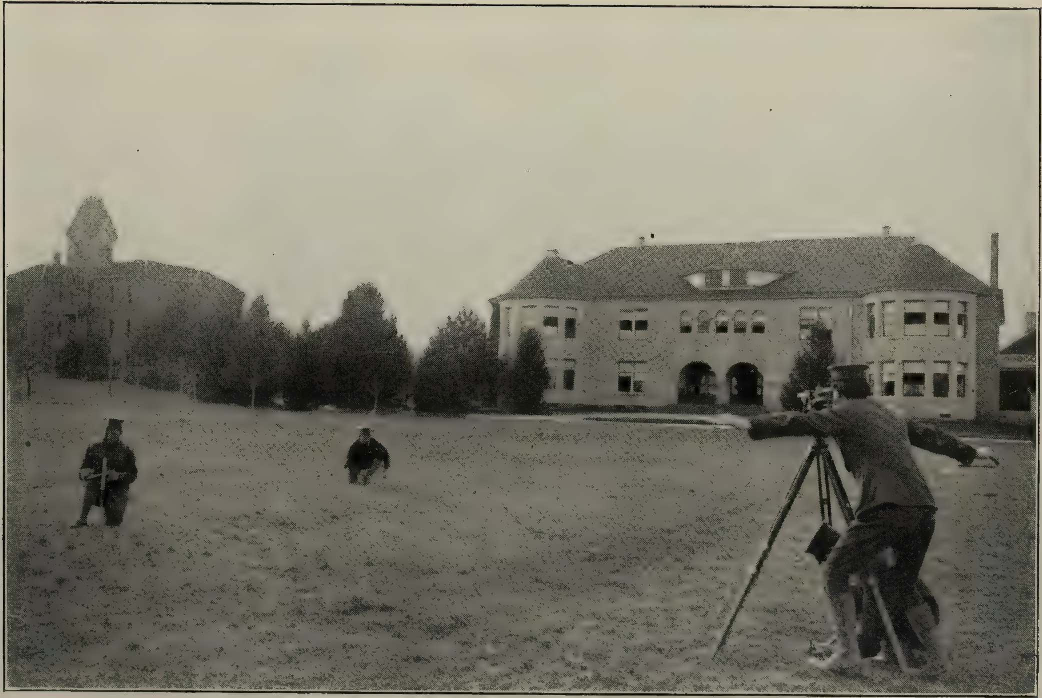
Views in Zoological Laboratories.



Mechanical Hall.

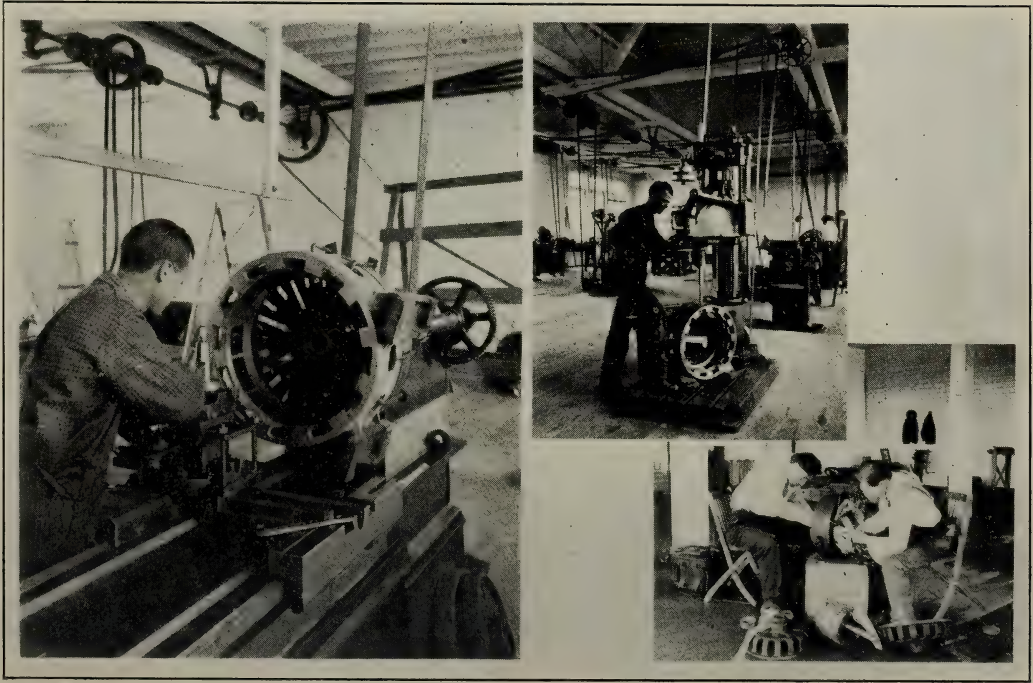
Mechanic Arts Building.

Class in Civil Engineering.

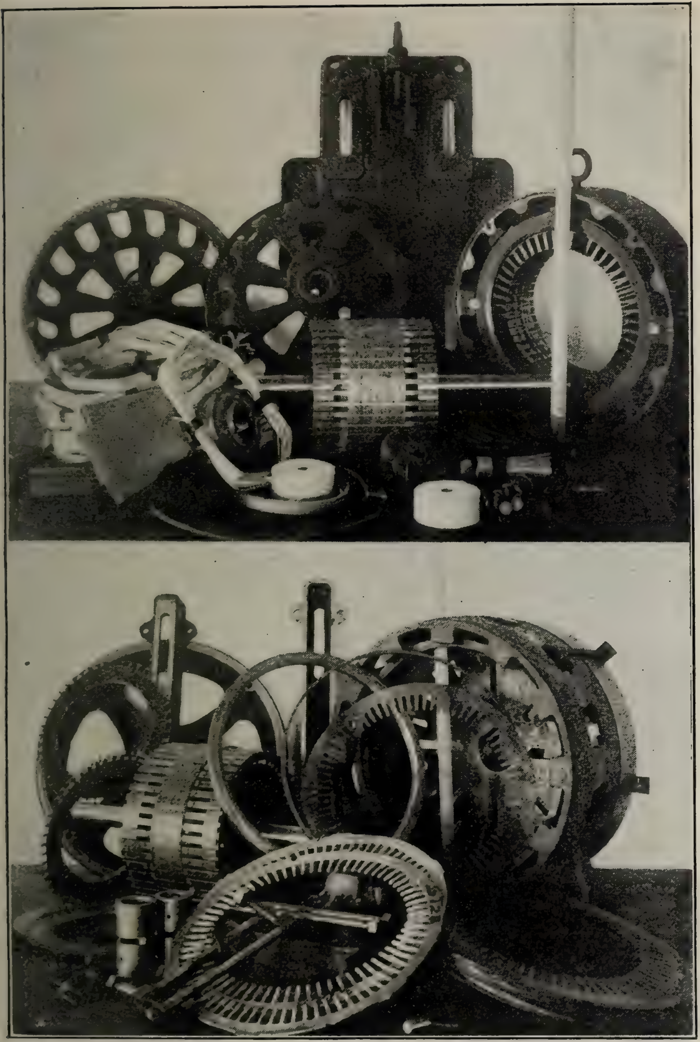


Students in Surveying.

Students in Surveying.



Views in Engineering Laboratory.



Engineering Laboratory—Dynamo Construction.

Class in Mining Engineering.

Views in Carpenter Shop.

Views in Shops.

Views in Forge and Machine Shops.

Chemical Laboratory.

Waldo Hall.

Dining Room, Waldo Hall—Class in Domestic Science.

Class Work in Domestic Science.

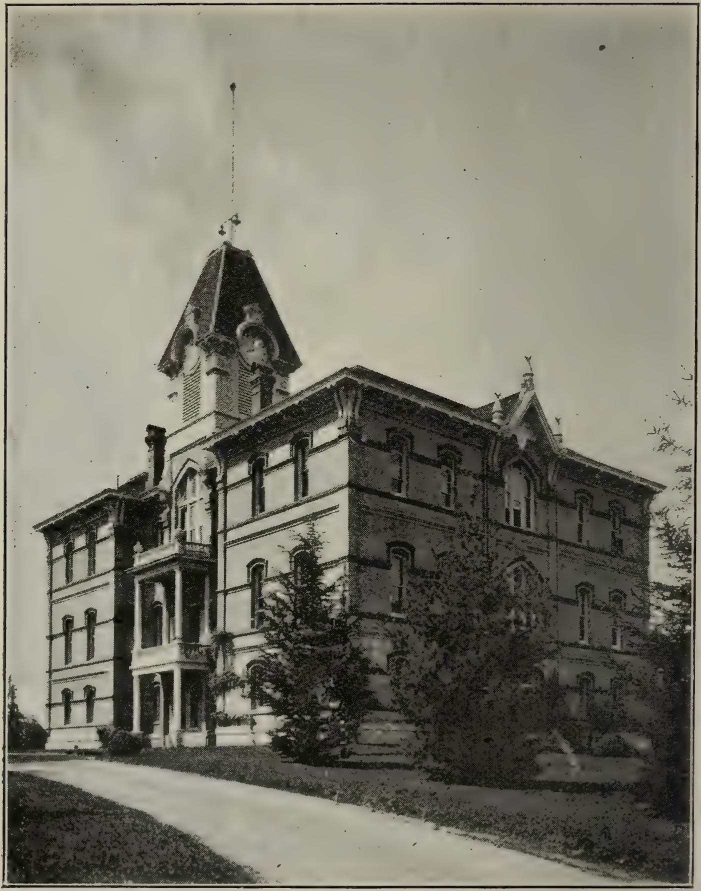
Students' Rooms, Waldo Hall.

Class in Free-Hand Drawing.

Class in Free-Hand Drawing.

Pharmacy Building.

Views in Pharmaceutical Laboratories.



Administration Building.

Armory.

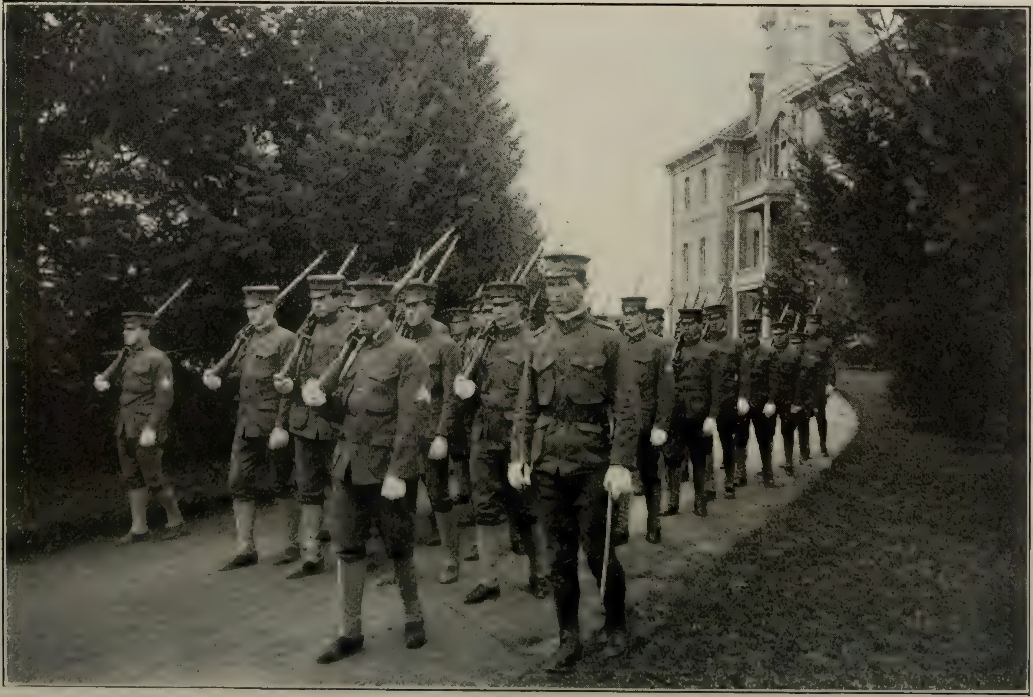
Cauthorn Hall.

Views on College Campus.

Campus View.

Section of Campus with Cadets in Foreground.

Cadet Band.



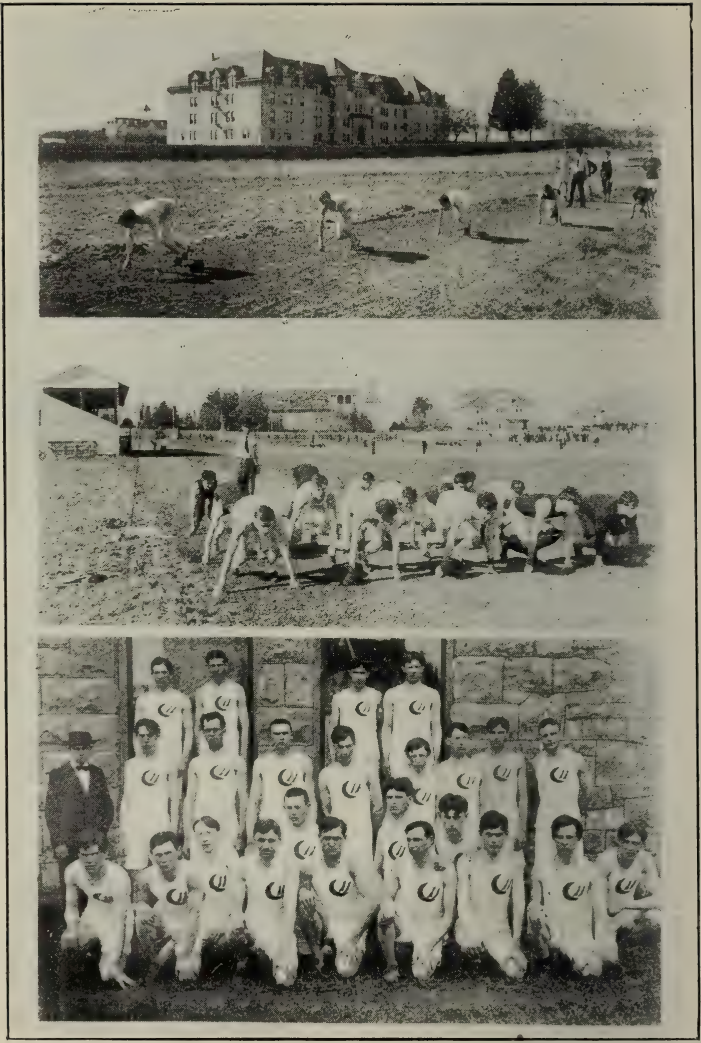
Company G., 1908.

Battalion Officers.

Mandolin and Guitar Club.

Baseball Team--College Champions of Oregon.

Football Team—Champions of Pacific Coast.



Track Athletics.

Oregon Agricultural College

GENERAL INFORMATION.

FOUNDATION AND ENDOWMENT.

In pursuance of an act of Congress approved by President Lincoln, July 2, 1862, a grant of land was made to each State in the Union in the amount of thirty thousand acres, or its equivalent, for each Senator and Representative in Congress to which the State was entitled by the apportionment of the census of 1860. The proceeds under this act were to constitute a perpetual fund, the principal of which was to remain forever undiminished; but the interest arising from said fund was to be inviolably applied by each state which should avail itself of the benefits of the act, to the support and maintenance of a "College where the leading objects shall be, without excluding other scientific and classical studies, and including military tactics, to teach such branches of learning as are related to agriculture and the mechanic arts, in such manner as the legislatures of the states may respectively prescribe, in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions in life." Ninety thousand acres of land were apportioned to Oregon. and by an act approved October 9, 1862, the Legislative Assembly of Oregon accepted the provisions of the congressional law.

The Land Grant Fund. The subsequent sale of this land has netted the College approximately $200,000. This at present is invested in securities bearing six per cent interest. The Act of Congress of 1862 explicitly states that no part of the funds so appropriated or the interest arising therefrom shall be used for the purchase, erection, or maintenance of any building or buildings.

The Hatch Fund. Under an Act of Congress, approved March 2, 1887, the College receives $15,000 a year for the maintenance of an Agricultural Experiment Station, "to aid in acquiring and diffusing among the people useful and practical information on subjects connected with agriculture."

The Morrill Fund. On August 30, 1890, an act was passed by Congress "to apply a portion of the proceeds of the public lands to the more complete endowment and support of the colleges for the benefit of agriculture and the mechanic arts established under the provisions of the act of 1862." This act provided that in 1890 $15,000 should be paid to each of the land grant colleges, and that the amount so appropriated should be increased by the sum of $1,000 annually for ten years, and that thereafter the amount annually appropriated should continue to be $25,000. Under an Act of Congress approved March 4, 1907, known as the Nelson Amendment, this fund is increased by the sum of $5,000 for the first fiscal year ending June 30, 1908, and by an additional $5,000 for each succeeding year until the total annual amount is $50,000.

The Adams Fund. An Act of Congress approved March 20, 1906, appropriated an initial $5,000 for that year, and $2,000 additional for each year thereafter until the annual amount shall reach $15,000. This fund is "to be applied only to paying the necessary expenses of conducting original researches or experiments bearing directly on the agricultural industry" of the State, and therefore supplements the Hatch Fund in the maintenance of the Experiment Station.

In addition to the income from the national government, the College is dependent upon the State Legislature for such appropriations as are required for the maintenance and development of the institution, in accordance with the provisions of the Acts of Congress, and in response to the industrial and educational demands of the State.

HISTORY.

As there were no state colleges in Oregon in 1868, the Legislature of that year, which provided for the location of the land received under the act of 1862, gave the interest on the funds derived from the sale of the land to the Corvallis College, a private institution in Benton County, which was then under the control of the Methodist Episcopal Church South. None of the land granted was sold for a number of years, and the Legislature made small annual appropriations for the support of the school.

In 1885 the church voluntarily relinquished its claim on the funds of the College, and the State assumed control of the institution. The Legislature of that year provided for the "permanent location of the State Agricultural College at Corvallis in Benton County," on condition that the citizens of said county should, within four years, erect on the "farm containing thirty-five acres in the immediate vicinity of said city, known as the Agricultural College farm, brick buildings for the accommodation of said State Agricultural College at a cost of not less than $20,000." During the summer of 1887 the corner stone of the building erected by the citizens of Benton County was laid by the Governor of Oregon, amid imposing ceremonies.

This structure, now known as the Administration Building, was the nucleus around which other buildings soon began to cluster as necessity and growing interest demanded. For a year or two there was ample room; but, as the institution grew more land was needed and provided, and instead of thirty-five acres originally comprising campus and grounds, the institution now owns two hundred and twenty-four acres; and instead of one structure there are now eighteen. There has also been an increase in the attendance from ninety-seven to eleven hundred and fifty-six students. Twenty years ago most of the students came from Benton and neighboring counties. Now every county in Oregon, and twenty other states and two foreign countries are represented. The increase in the number of students called for an increase in the number of the faculty. This body, from the number of five in 1884, has grown until it now closely approaches the fourscore mark. Other features usually found in connection with progressive educational institutions have grown in equal ratio. The courses have been strengthened, the standard has been advanced, and other improvements made from time to time, which have added to the thoroughness and efficiency of the work.

GOVERNMENT.

The general government of the College is vested primarily in the Board of Regents, and, under their control, in four other administrative bodies,—the Administrative Council, the College Council, the Faculty, and the Experiment Station Staff. These bodies, in the exercise of their respective duties, determine the questions of policy and regulate all matters relating to the interests of the institution.

The Board of Regents consists of thirteen members, of whom the Governor, the Secretary of State, the Superintendent of Public Instruction, and the Master of the State Grange are ex-officio members. The other nine members are appointed by the Governor with the approval of the State Senate, and hold office for a term of nine years. Under a law of the State Legislature, passed in 1885, the Board of Regents constitutes a body corporate, under the name of "The Board of Regents of the State Agricultural College, * * * with power to sue and be sued, and to make contracts," and to enact such regulations as may be necessary for the maintenance and development of the College.

The Administrative Council consists of the President of the College, the Director of the Experiment Station, and the Deans of the different schools. The function of this council is to consider and determine the larger questions of policy and administration.

The College Council is composed of the President of the College, the professors, and assistant professors. This body considers all general questions relating to the educational work and policy of the College; arranges and correlates the courses of study, and determines the requirements for admission and graduation. The different committees of the College Council, representing the several schools of instruction, have charge of the enrolment and progress of students in the respective schools, and investigate the records of all candidates for graduation.

The College Faculty includes the President, the professors, the assistant professors, the librarian, the instructors, and the assistants. It considers routine questions of method and discipline for which it is particularly well adapted, being in close contact with all that pertains to student interests and student life.

The Experiment Station Staff includes the President of the College, the Director of the Experiment Station, and the heads of the various departments of the School of Agriculture that are engaged in research and experimental work. The members of this staff are engaged in the investigation of problems encountered in the development of the agricultural interests of the state. They also distribute information regarding their investigations by means of correspondence, circulars and station bulletins.

The Students. The College does not undertake to prescribe in detail either its requirements or prohibitions. Students are met on a plane of mutual regard and helpfulness. Since the advantages of the institution are provided at public expense, the students are under special obligation to perform faithfully all their duties, not only to the College, but also to the State and to the community. Whenever the deportment of any student is such that his influence is inimical to the interests of the institution, he will be relieved from further attendance.

PURPOSE AND SCOPE.

The purpose of the College is to provide, in accordance with the acts of Congress under which it is maintained, a liberal, thorough, and practical education,—an education that will afford the training required for efficient service in different branches of industry. The distinctive technical work covers the three great fields of production, manufacture, and commerce. Special attention is given to the applications of science. All the practical work in the laboratories, in the shops, in the orchards, and on the farm, is based upon scientific principles. While the industrial or technical work is emphasized, the importance of a thorough general training, of mind development and culture, is recognized in all of the work throughout the institution. The object is to meet the demand for a broad and general education, supplemented by special technical training.

The work, therefore, covers a broad field, including technical courses along the different lines of agriculture and forestry, commerce, pharmacy, engineering, and household technology, with the necessary training in the basic subjects of mathematics and the natural and physical sciences; and also the general training in language, literature, history, and civics, which constitutes an essential part of a liberal education.

In all the work of the institution, the object is to train the mind and eye and hand to act in unison; to unfold and coordinate the faculties of mind and body; to develop a symmetrical manhood and womanhood, and a just appreciation of clean, upright citizenship.

LOCATION.

The seat of the Oregon Agricultural College is Corvallis, a city of over four thousand inhabitants, situated at the head of navigation on the Willamette River. As the name implies, it is in the heart of the far-famed Willamette Valley. It is readily accessible by railway from all parts of the state; it has free mail delivery; there are many churches, and no saloons, and the moral tone is equal to that of any city within the boundaries of the State. It is a city of homes, and its people are justly proud of the great institution within their midst, and jealously guard its good name.

Naturally located on high, well-drained land, open to the invigorating sea breeze, Corvallis is one of the most healthful cities in the State. It has never been visited by any dangerous epidemic disease, and the possibilities of such visitation in the future appear remote, for the city has a complete modern sewerage system and a first-class gravity water system, supplied from springs high up on the flanks of Chintimini, the tallest mountain in the Coast Range, some fifteen miles away to the west. The city and its environs are conducive to wholesome student and home life. It has an ample supply of pure mountain water for all domestic and sanitary purposes. The atmosphere is purified, and the climate ameliorated by almost constant ocean breezes,—warm in winter and cool in summer. The surrounding landscape elicits praise from all who behold its delightful charms as viewed in the extensive area of fertile fields, gardens and orchards. The wooded glens of the near-by foothills, and the rippling mountain brooks, or the more pretentious streams frequented by canoe, yacht, and launch parties are fruitful sources of recreation. While the magnificent distant views to the east, where the fir-clad Cascade Mountains, with their wealth of trees and their perennial snow-capped sentinels, Hood, Jefferson and the Three Sisters, present a constant panorama of picturesque mountain scenery. With such an environment, the city is truly an ideal location for a college and a home.

GROUNDS AND BUILDINGS.

The College Grounds comprise two hundred and twenty-four acres and occupy a slightly elevated and gently undulating site partly within the western limits of the City of Corvallis. That part of the grounds, over forty acres in extent, lying immediately about the several buildings and usually designated as the lawns and campus, is tastefully planted with both native and exotic ornamental trees, shrubs, and herbs. The one hundred and eighty acres used for the farm, garden and orchard operations is so platted and planted as to meet the demands of the various lines of work and still conform to a general scheme of landscape embellishment. Broad drives and walks traverse the grounds in all directions, thus rendering every objective point easily accessible. The numerous magnificent specimen trees, groups of shrubbery and massed borders are a source of enjoyment as well as instruction to all those who frequent the grounds. The scheme of planting has been such as to give the grounds an air of peaceful activity, orderly effort, earnest purpose, and quiet refinement. Daily association with such scenes, for a period of years during the time when men and women are forming the habits of thought and action that will be theirs through life, is certain to have a deep-seated and subtle influence for good in moulding the character of future citizens.

The following brief descriptions will convey a general idea as to the principal buildings and the purposes for which they are used.

The Administration Building is a three-story brick structure, 90x120 feet, containing thirteen recitation rooms, the library, and the offices of the President, the Registrar, and the Secretary. Centrally located and on a slight eminence, it commands an unsurpassed view of the campus, the City of Corvallis, the Willamette River, and the picturesque Cascades.

Agricultural Hall, located southeast of the Administration Building, and constructed of gray granite and sandstone, covers a ground space of 85x125 feet, has three stories and basement, and contains twenty-nine rooms. It is one of the most substantial buildings on the grounds, and within it at present are the offices of the Director of the Experiment Station, and the Dairy, Bacteriological, Botanical, Chemical, and Zoological departments, with their various laboratories, recitation rooms and lecture halls, together with the general museums.

The Agronomy Building, which is being constructed during the summer, and will be ready for occupancy in October, 1908, is located southwest of the Administration Building, and is the north wing of the proposed new Agricultural Hall. It is an imposing structure of brick and stone, 72x130 feet, with three stories and basement. It faces north, commanding splendid views of the valley and the college grounds. It is thoroughly modern in all its equipment, and while intended ultimately solely for the work in agronomy, at present it temporarily accommodates three departments, with parts of others. The first floor is occupied by the departments of Agronomy and Horticulture, contains eight rooms, and is specially arranged for such work as agrostology, soil physics, and kindred subjects; the second floor contains nine large rooms, particularly furnished for the work of domestic arts, dressmaking, sewing, millinery, cutting, fitting, and modeling; the third floor, with eight rooms, is fitted for the work of the course in commerce, consisting of accounting, shorthand, typewriting, banking, merchandising and other phases of commerce. The interior finish throughout is natural grain Douglas fir, burlap wainscoting, and tinted walls. Every room is provided with hot and cold water, electric light, steam heat, and special furniture. The laboratories are floored with tile, while desks, tables and other appliances are of the most recent design for the work in hand.

The Horticultural Building is a two-story frame structure, 30x36 feet, with accompanying glass houses having separate floor space of two thousand three hundred square feet. It is located about one hundred yards north of the Administration building, and contains the offices and principal laboratories of the department of Horticulture.

Mechanical Hall is located about one hundred and fifty yards northeast of the Administration Building. It is two stories high, 90x120 feet, and constructed of Oregon gray granite and sandstone. It is a fine, substantial building, well arranged and admirably adapted to the purpose for which it is used. Besides recitation and lecture rooms for the classes in Mechanical, Electrical, and Civil Engineering, it contains the Art Rooms and the Physical Laboratories.

The Mechanic Arts Building is a modern, well-lighted structure of brick with cement foundation; 52x52 feet, two stories high, flanked by a one-story wing on the east, 40x220 feet, and a similar wing on the south, 40x200 feet. The central portion contains the office of the Director, a display room for student work, a tool room for the machine shop, and a finishing room for the wood shop. On the second floor is a general drafting room, 30x50 feet, with a commodious blue-print and dark room adjoining. The south wing contains the main wood-working shop, 40x97 feet, a stock room, 30x40 feet, a carpenter shop, 20x40 feet, and the College printing plant, 40x50 feet. The east wing contains the machine shop, 40x80 feet, the blacksmith shop, 40x100 feet, store room for coal and iron, lockers, and toilet rooms.

The Mining Building is a small frame building immediately south of the Administration Building, and contains the Mining Engineering offices and recitation rooms.

The Mining Laboratory is situated midway between the Administration and the Pharmacy buildings. It is a brick structure, one story high, 40x70 feet, and well lighted. This building has been remodeled recently, and now contains the Geological and Mineralogical laboratories, an assay laboratory, a weighing room, a supply room, and store rooms for the work in Mining Engineering.

The Armory is situated about two hundred yards south of the Administration Building. It is built of stone and wood, 70x120 feet. As its name implies, it is intended, primarily, for the Military Department, but its one large room is also used as a lecture hall, an assembly room, or a place for entertainments when large audiences are expected. It will accommodate fourteen hundred persons. In the basement are the offices of the Commandant and cadet officers, dressing rooms, shower baths and bowling alleys. The main hall, which is twenty feet to the under side of the trusses, has an unobstructed floor area of 8,000 square feet. It is encircled by a suspended gallery six feet wide.

The Pharmacy Building, located about two hundred yards west of the Administration Building, is a two-story frame structure, containing two large laboratories, three lecture rooms, a machinery and drying room, a pharmacognosy room, store rooms, special laboratories and office. The whole building is amply lighted and ventilated, and affords adequate and suitable quarters for the department.

The Power Plant, a one-story brick building in the rear of Mechanical Hall, contains the requisite equipment for supplying the various buildings with heat, light, and power. The apparatus installed in this building serves the purpose also of demonstration equipment in these special lines.

Waldo Hall, the women's dormitory, occupies a commanding site one hundred and fifty yards southwest of the Armory. It is a large building of striking proportions, with a cement foundation and basement wall and a cream-colored pressed brick superstructure, three stories high. The dimensions are 96x240 feet, and it contains one hundred and fifteen rooms for students, besides a kitchen, dining rooms, parlors, and Domestic Science laboratories. It is modern in all its appointments, and finished throughout in natural grain Douglas fir, stained to conform to the color scheme.

Cauthorn Hall, the men's dormitory, is a well-proportioned frame building, located on a sightly spot in the extreme western part of the campus. It is 160x50 feet, three stories and basement, and contains sixty-two rooms, besides a large kitchen, dining, and reception rooms. Though not so modern in its furnishings as Waldo Hall, its appointments are adequate and in harmony with its use. Each floor is supplied with hot and cold water, baths, electric light, and steam heat.

Shepard Hall. The new Y. M. and Y. W. C. A. building will be completed by the opening of school in September. The total cost will be something over $20,000. The original plans have been somewhat modified, giving, in many respects, a better building than planned at first. This building, when completed, will contain in the basement a swimming pool, shower baths, lockers, banquet rooms, kitchen, wood room, and accessories. The first floor will be devoted in the main to a large lobby for reading room, game room, social events, and general assembly, the General Secretary's private office, a public office, a cabinet and check room combined, a room for the Y. W. C. A., and one to be used jointly by the Athletic Association and the College papers. The second floor will contain six rooms for the use of the literary societies. The third floor will be devoted for the present to dormitory purposes. The building is to be known as Shepard Hall, and is a fitting tribute to the memory of Clay Shepard, who gave his life to the cause of cleaner, higher, and truer citizenship as exemplified in student life.

Farm Buildings. The College farm is now well equipped with farm buildings, and modern facilities for conducting practical and scientific work in animal husbandry.

The New Barn recently constructed is commodious, modern and attractive in design. It is a frame building, with cement foundation and brick pilasters. The main part is 50x100 feet, two stories high, with two wings extending to the south, each 46x80 feet, one story in height, and a milk room, an engine room, and a fuel room. The building will be utilized as a general barn, and will accommodate nine horses and seventy cattle, with sufficient space for the storage of feed. On the first floor of the main portion are located the horse stalls, bins for storing the various grains and mill feeds, seed room and space for vehicles. The concrete basement is of sufficient dimensions to store about one hundred tons of roots. The second floor has a storage capacity for one hundred tons of loose hay. A prominent feature of the barn is the cow stable. This is strictly modern, well lighted and well ventilated, concrete floor, thirty individual tubular iron adjustable stalls, and two commodious box stalls. The aisles are wide, and thus not only furnish an abundance of air space for the animals, but they also afford visitors an excellent opportunity to view the stock. The milk and engine rooms are conveniently situated, but sufficiently isolated for proper sanitation. This building is lighted by electricity, well supplied with water, thoroughly sewered and furnished with an elaborate system of bell traps.

The old barns will be relocated and remodeled so as to harmonize with the new structure, and when completed, will have a large machinery building, sheds for fattening cattle, and a convenient piggery.

The Poultry Houses. On a ten-acre tract of land, lying southeast of Cauthorn Hall, and west of Waldo Hall, that has been set aside for work in Poultry Husbandry, there have been erected several buildings specially planned for the needs of this department. These buildings comprise an incubator house, with a capacity of twenty-four incubators and complementary apparatus, and twenty-eight colony houses for laying stock and growing chicks. The colony houses are movable and constructed upon a plan that could be adopted by any farmer. The colony brooding coops are also portable, and are used for investigations in both natural and artificial brooding.

In addition to the above buildings there are several minor ones variously located about the campus, including the residences of the Director of the Experiment Station and the Commandant, the insectary and horticultural storehouse and fruit-drier.

EQUIPMENT.

It is impossible in the brief space that is devoted to this topic to give more than a bird's-eye view of the equipment of the institution. However, the following data have been so arranged as to give the prospective student a very good general idea of the comprehensive equipment that the institution possesses for carrying forward its designated work.

Agronomy. The new Agronomy Building provides spacious and finely lighted class room, office, laboratory and store room facilities for this work. The large soil laboratory is newly equipped with the most modern apparatus for the study of the structure and the physical qualities of soils. Abundant desk and locker room is furnished for sections of fifty students, with running water, gas, compressed air, and electricity. Electric and hand centrifugal machines, electric shaker, compound microscopes, aspirators, compacting machines, air and water baths, thermometers, scales, analytic balances, soil sieves, tubes and cylinders of many kinds, pots and wire baskets, greenhouse room and chemical apparatus, form part of the equipment of the work in Soil Physics and Soil Fertility. Soil surveying and mapping outfits, soil survey charts of the United States and specimens of the chief soil types of Oregon and the United States are being assembled.

For the work in Crop Production another large laboratory is provided with special grain judging compartment desks, sufficient to accommodate sections of thirty students. Some of the chief apparatus used here for the several courses in this subject are general and special germinating chambers and plates, complete sets of compound microscopes, dissecting microscopes, and mounted large field lenses, seed sampling and mixing machines, grain receptacles of all kinds, grain tester, etc. Each student is provided with samples of both the seed and the plant of all the chief varieties of field crops and weeds of Oregon and the United States.

Farm Mechanics is provided for in a separate building on the farm, fitted with shafting and power and various farm machines. Draining tiles, surveying instruments, tile and ditching tools are furnished for drainage work.

The Agronomy class rooms have demonstration desks, lantern facilities, illustrative charts of various kinds and a new reference library.

Animal Husbandry. The barns and accessory buildings on the farm, used jointly with the department of Agronomy, meet the requirements for comprehensive work in Animal Husbandry. The stock available for illustraation and demonstration purposes includes typical specimens of Jersey, Holstein, Guernsey, Ayrshire, and both beef and milk types of Shorthorn cattle; draft horses; Cotswold and Shropshire sheep; and Yorkshire and Berkshire swine. In addition to the college stock, students are afforded an opportunity to examine, score, test, and otherwise study the splendid specimens of the various other breeds kept by private breeders and stockmen on near-by farms. The department possesses extensive sets of lantern slides, maps, charts and the necessary minor apparatus for conducting the various lines of lecture, laboratory, field, and research work necessary to the broad courses of study in the several phases of Animal Industry.

Dairy Husbandry. This department occupies about one-half of the first floor of the Agricultural Hall. At the left of the main entrance is the office and recitation room, and to the right are located the dairy rooms proper. The main work room, located in the northwest corner, is 24x44 feet, with cement floor sloping toward the center. This room is equipped with seven of the latest styles of cream separators, suitable for farm use. These machines are mostly loaned to the department, and are replaced whenever in the opinion of the dealers there have been important changes in the construction of later models. There are also combined churns and workers, box churns, table workers, receiving and ripening vats, pasteurizer and cooler, and the necessary apparatus for the manufacture of full cream Cheddar cheese.

Adjoining the main work room are lockers for students' use, a well-lighted boiler room equipped with vertical boiler and engine, and a wood and store room.

In the northeast corner of the building is the testing laboratory, equipped with all the modern devices for testing milk and its products, such as hand and turbine Babcock testers, curd test, moisture determination apparatus, cream scales, and automatic acid measures.

Two commodious cheese curing rooms, 10x16 feet and 12x16 feet, respectively, complete the quarters of the Dairy Department.

The dairy wing of the new College barn has accommodations for thirty cows, also boiler, storage, and separating rooms, occupying a space 16x33 feet. A milking machine, operated by gasoline engine, and a foot power milker, are used on the dairy herd for purposes of experiment and comparison with hand milking.

The dairy herd which supplies a large portion of the milk used in the demonstration work of the department, consists of about twenty-five typical animals of the leading dairy breeds, including the Jersey, Guernsey, Holstein, Ayrshire, and milking type of Shorthorn.

Poultry Husbandry. The equipment of this department consists of a number of poultry houses of different types; about 300 fowls of several breeds and varieties, sixteen incubators of three different makes, bone and clover cutters, trap nests, cramming machine, and various other appliances that are necessary on a well-conducted poultry farm. There are also sets of charts, lantern slides and photographs, illustrating breeds of fowls, poultry farms and houses.

Horticulture. In the Horticultural Building are a large general laboratory, thirty feet square, containing the necessary equipment for instruction in plant propagation; a senior laboratory for the use of graduate students and other students interested in experiments and investigations; a drafting room for advanced students in landscape gardening, and a dark room for the use of students doing advanced work. In the office in this building are also to be found a fine collection of negatives and slides illustrating the many phases of Horticulture, and a good department library. Adjoining this building are the forcing houses; one of these being especially fitted for a green house laboratory for students in Floriculture, Olericulture, and Plant Propagation; the two adjoining houses contain plant materials for class study.

In the new Agronomy Building two rooms will be used for Horticultural purposes; one of these will be especially equipped for work in Pomology, while the other will be for general class purposes.

The department also has the use of one of the large drafting rooms in Mechanical Hall for students in Greenhouse Construction and Landscape Design. In the new barn one wing is to be used the coming fall as a packing shed, and will be well supplied with packing tables, nailing presses, and other machinery used in packing fruit.

For field instruction the department has an orchard containing many varieties of apples, pears, grapes, small fruits, and nuts; a commercial Newtown orchard in full bearing, a vegetable garden, and a large campus containing a splendid collection of ornamental shrubs and trees.

Domestic Science. This department is located on the basement floor of Waldo Hall, occupying the entire floor, except that part used for the hall dining room and kitchen. There are two large cooking laboratories, a lecture room, a scientific laboratory, a room for instruction in home nursing, with proper furnishings to give practice in making and changing beds for the sick and the general care of the sick room. The cooking laboratories are equipped with work tables, cupboards, ranges, gas and electric cooking apparatus, and all necessary utensils and modern conveniences for teaching cooking. The dining room is furnished with extension tables, chairs, sideboards, cupboards, china, silver, and table linen. The department is also provided with a large laundry, equipped with stationary tubs, drier, ironing boards, skirt boards, and other necessary furnishings.

Domestic Art. Almost all of the entire second floor of the Agronomy Building is alotted to the work in Domestic Art, containing rooms for hand and machine sewing, cutting and fitting, millinery, household decoration, etc. The machine rooms are furnished with the latest improved machines, and the sewing rooms are provided with tables, tracing boards, electric irons, wardrobes, and cupboards for holding unfinished work, large display cabinets for finished work, and cabinets for the collection of samples showing the processes of manufacture of cotton, wool, silk and linen.

Civil Engineering. In addition to joint use with the Mechanical department of the testing laboratories and blue print rooms described elsewhere, this department has for its exclusive use a suite of four well-lighted rooms, suitably arranged on the second floor of Mechanical Hall. This suite includes an office, a recitation and lecture room, an instrument room and a drafting and designing room.

The drafting and designing room, 28x47 feet, is well lighted and fully equipped with thoroughly modern and convenient drawing tables, supplied with individual lockers for instruments and other apparatus. The instrument room is equipped with lockers and convenient instrument racks; among the equipment of field and office instruments are the following: Three engineer's transits with all necessary attachments, including one Burt solar attachment and one Saegmuller solar attachment; two light mountain transits, one with a solar attachment; one reconnoissance transit, three engineer's "Y" levels, one dumpey level, two plane tables with best equipment, one railroad compass, one current meter with electric sounder and time recorder, one planimeter, one standard steel tape, two Locke levels, one high-grade surveying barometer, pocket compasses, level rods, stadia rods, axes, chains, tapes, flag poles, and other necessary articles, together with a well-selected assortment of specifications and blue print plans of engineering structures for illustrative purposes.

Electrical Engineering. The laboratories of this department occupy the entire west half of the first floor of the Mechanical Hall. The equipment includes not only the generators, motors and other apparatus in the dynamo and electrical testing laboratories, but also the machinery in the College Light Station, which is as follows: One battery of three boilers for power and heating; two 12½ kilowatt 125 volt direct current dynamos, one 50 horse power high speed engine, one 30 kilowatt 1100 volt three phase alternator, two 50 kilowatt transformers, one 5 panel switchboard. The latter piece of apparatus has connected to it all of the light and power circuits running to the several buildings; the trunk lines to the laboratories; and those to the 10,000 volt step-down transformers of the long distance 3 phase transmission line, which are located in the engine room. The arrangement of switches is such that a current may be generated in the power house and at the same time high tension electrical energy may be received and distributed over any or all of the circuits.

In the dynamo laboratory is erected a large three panel switchboard, on which are the terminals of the 110 and 220 volt single and 3 phase alternating, and 125 volt direct current mains, and from which run leads to the following machines: Five 125 volt direct current motors, sizes varying from 6 to 10 horse power; one 5 horse power 220 volt 3 phase induction motor, one 7½ horse power 220 volt 2 phase induction motor, two 5 kilowatt 125 volt direct current dynamos, one 2 kilowatt 125 volt double current generator, one 110,000 volt high tension testing transformer; one 6 horse power high speed steam engine is in the laboratory and is used for driving small machines. The usual voltmeters, ammeters, electrodynamometers, wattmeters, and lamp banks, for electrical measurements, are available, and in addition there is a set of instruments for calibrating purposes, including a standard testing set, millivoltmeters, manganin shunt and other apparatus. In a room especially fitted for demonstrations are two standard photometers, one of fixed and the other of portable type. A start has been made also in equipping electrochemical and telephone laboratories.

Mechanical Engineering. The department laboratories contain apparatus for experimental work as follows: One Riehle automatic and autographic 50,000 pound testing machine for testing the strength of materials in tension, compression or bending, with automatic recording device for drawing the strain diagram, and extensometer for measuring the elongation in thousandths of an inch, one Fairbanks cement tester with briquette moulds for testing the strength of Portland and other cements, one Carpenter throttling calorimeter for determining the percentage of moisture in steam, one Tabor steam engine indicator, one Thompson steam engine indicator, one Amsler's polar planimeter for measuring the areas of indicator cards and other irregular areas, one combined pump and dead weight steam gauge tester for testing the accuracy of steam gauges, one standard test gauge for comparison, one dial dynamometer reading to 200 pounds, one pony brake fitted to engine fly wheel for measuring the brake horse power.

The apparatus contained in the power plant is also available for testing. Some of the principal pieces are: One 54 inch return tubular boiler, two 60 inch return tubular boilers, together with the necessary feed pumps, injectors and feed water heater; one Ideal 40 horse power automatic high speed engine, size 9x10 inches.

The Wood Shop, supplied with the best machines and tools the market affords, contains twenty double benches of modern design, accommodating forty students. Each bench is provided with patent rapid action vises for holding the work, and is furnished with two sets of hand tools, consisting of rip, cut-off, and back saws, planes, chisels, paring gouges, marking gauges, try squares, hammers, dividers and oil stones. The machine equipment of this shop consists of twenty wood-turning lathes, each furnished with a set of tools; one iron saw-table with rip and cut-off saws, one band saw, one jig saw, 24 inch surface planer, 16 inch glue joiner, four sided 4 inch moulder, power mortiser and borer combined, post boring machine, swinging arm sander, two grindstones, one concave for gouges and one straight for plane irons and chisels; there are also two glue tables with clamps of various sizes, and one steam and gas glue heater of three gallons capacity; the power is furnished by two 3 phase induction motors of 15 horse power each.

The Forge Shop contains forty-two down-draft forges of the most improved pattern. Blast is furnished by a steel pressure blower driven by a 10 horse power induction motor, and the smoke and gases are removed by an 80 inch exhaust fan, driven by a 20 horse power motor. Each forge is provided with anvil, hammers, hardies, tongs and other small tools. There are also swedge blocks and vises at convenient points in the room for general use.

The Machine Shop contains one 24x24 inch iron planer, one 15 inch shaper, one universal milling machine, one universal tool grinder, one radial drill, one 20 inch drill press, one 20 inch engine lathe, one 16 inch engine lathe, five 14 inch engine lathes, two 10 inch speed lathes, one emery grinder, one automatic knife grinder and twelve bench vises. A 20 horse power induction motor furnishes the power. A tool room adjacent contains the small tools, such as twist drills, taps, reamers, dies, calipers, gauges and scales. These tools are given out to students on the check plan.

Mining Engineering. This department occupies two buildings; the small building south of the Administration Building contains the Mining Engineering office and recitation rooms, while the building just west of the Administration Building contains the laboratories in Geology, Mineralogy, Metallurgy, and Assaying. The department possesses the following geological and mineralogical collections:

A Mineral Type collection, consisting of about twelve hundred and fifty well characterized and labeled specimens used by the students for purposes of study and comparison; A Working Collection of minerals, consisting of about four thousand unlabeled specimens similar to those in the type collection used by the student for study and determination; An Exhibit Collection of minerals, consisting of large and attractive specimens of minerals and rocks; A Crystal Collection, containing about eight hundred natural crystal forms; A Crystal Model Collection, consisting of forty-eight large glass crystal models and about five hundred wooden models used in the study of Crystallography; A Blowpipe Collection, containing minerals and materials used in blowpiping; The United States' Geological Survey Educational Series of Rocks; A Working Collection of Rocks, containing unlabeled specimens for the use of the student in the work of lithology.

The assaying and metallurgical laboratory is equipped with two double muffle coal furnaces, two gasoline muffle furnaces, two gasoline crucible furnaces, one combination gasoline furnace, one Parr's Pyrometer, button balances, pulp balances, cupel machines, and all necessary appliances for a modern assay laboratory.

During the past year the department has received, through the generosity of the Hardsocg Wonder Drill Co., Ottumwa, Iowa, one Hardsocg Hammer Drill (Model 19c) with full complement of steel.

Commerce. This department is completely equipped for thorough and efficient work in modern business courses. Each room is specially designed and furnished for the work to be conducted in it. The furniture of the department consists of hard-wood desks and counters, a complete set of modern banking fixtures, a wholesale house, a retail house, a commission house, freight, real estate, and insurance offices. Permanent blank books, letter files, rubber stamps, copying presses, college currency, blanks and similar material are provided by the College. The room for typewriting contains a full complement of standard machines, each provided with stand and copy holder. The room for stenography is furnished with tables designed for convenience in practice work.

Pharmacy. In addition to the usual outfit of desk apparatus for the individual student, the department is supplied with a number of special pieces of apparatus for general use, as pharmaceutical stills, from the simple retort to the complicated vacuum still; drug mills, for hand and power; suppository machines, for fusion and for compression; tablet machines; mould and compression pill machines; tincture presses; capsule filling machine; percolators, and much minor apparatus.

Bacteriology. The equipment of the bacteriological laboratory consists of modern apparatus for teaching bacteriology in all its phases. There are compound microscopes of the highest grades, incubators, steam sterilizers, an autoclave, hot-air sterilizers, dissecting microscopes, microtomes, counting apparatus, hydrogen gas apparatus for growing anaerobes, water baths, centrifuges, paraffin baths, balances, desiccators, blood counting apparatus, fermentation tubes, test tubes, flasks and other glassware.

Botany. The botanical laboratories, occupying a suite of five rooms on the third floor of Agricultural Hall, are equipped with high grade apparatus of recent design. The herbarium of several thousand mounted and many thousands of unmounted plants is particularly rich in Oregon forms, while containing quite extensive collections of the New Mexico, California, Michigan, Washington and Alaska floras. Large and miscellaneous collections of mosses, fungi, and lichens are being assembled.

The collection of native and foreign wood specimens is of particular value in the forestry phase of the department's work.

Among the special technical apparatus of the department open to the use of every student prepared for the work are: A select collection of Brendel's models of typical forms of both flowering and flowerless plants; complete compound microscopes, simple and compound condensers, immersion lenses, electric slides, polariscopes, camera lucidas, micrometers, microtomes, paraffin and water baths, incubators, sterilizers, clinostats, hygrometers, osmosometers, potometers, photo-synthescopes, spectroscopes, respirometers, complete photographic outfits, projection lantern, large collections of photographs, microscopic mounts and lantern slides.

Chemistry. The department of Chemistry occupies nearly all of the south wing of the Agricultural Hall, and one room in the basement of the central portion. In this latter room, aside from desk space for seventy-two students, is a 150-light Terrill gas machine that supplies gas for the different laboratories throughout the building. The main lecture room is situated on the third floor, and has a seating capacity of one hundred and fifty. It is provided with lecture tables that are supplied with gas, electricity, and water. Adjoining the lecture room is a small preparation room, in which is kept all special apparatus used for lecture demonstration, as well as supplies for the agricultural laboratory. This room is supplied with all the necessary apparatus for the proper elucidation of the principles of this branch of chemistry.

The organic laboratory is fitted for twenty-four students. Each student has a drawer and locker, a sink, a Richards' filter pump, a full set of reagent bottles, individual gas and water outlets. Next to this laboratory is a room set apart for fuel and gas analysis and for photographic chemistry. The special apparatus of this room consists of Orsats' bulbs, and pipettes, Winkler's burettes, the latest forms of Hempel's blubs, Victor Myers', Dumas', and Hoffman's apparatus for molecular weight determination, Beckman's cryoscope, Landsberger's ebulliscope, Parr's latest form of calorimeter, analytical and torsion balances, and the usual small pieces that accompany the above.

The largest room in the building is the main general laboratory, which will accommodate three hundred and ninety students, in four sections. Adjacent to this laboratory is a store room amply stocked with all necessary supplies and apparatus.

The weighing room contains eight analytical balances of the best type for student use, and is well lighted and ventilated.

The quantitative laboratory, which will accommodate seventy-two students in three sections, is in the basement, and adjoins the store room. It is fully supplied with various kinds of calibrated ware, as flasks, burettes, cylinders, urinometers, lactometers, hydrometers, and barometers; centrifuges for rapid separation of precipitates, blast lamps for fusions, muffles for incinerations, tables for glass working, and much minor apparatus.

For work in Agricultural Chemistry an entire room is set aside. This room is fitted with gas, water and electricity, condensers for distilled water, batteries, extraction apparatus for fats, nitrometers, Kjeldahl apparatus, hot water filtering apparatus, grinders for fodders, steam and air baths, calorimeter, polariscope, Westphal and analytical balances, coarse balances for rough work, hot plates, and minor apparatus. This is one of the strongest divisions in the department and is lacking in nothing that makes an up to date agricultural chemical laboratory.

Physical Laboratory. This laboratory is supplied with micrometer and vernier calipers, spherometers, mercurial and aneroid barometers, pendulums and Atwood's machines for the determination of laws of falling bodies; a number of accurate physical balances, calorimeters, sonometers, lenses and color discs, and various pieces of minor apparatus.

For electrical measurements the following type of instruments are used by the students: Tangent, sine, D'Arsovnal, ballistic, and high resistance galvanometers, ordinary and post office resistance boxes, shunts, and standard cells. The photometer room and the Electrical testing laboratory equipment are available to students specializing in Physics.

Zoology. The laboratories of this department occupy the following seven rooms on the third floor of the Agricultural

Hall: Office, research laboratory for entomology and plant pathology, advanced students' laboratory, general laboratory, lecture room, store room, and photographic dark room. The general laboratory is equipped with thirty tables, each of which is provided with a compound microscope, a dissecting microscope and various minor pieces of apparatus. The lecture room is provided with an articulated skeleton; a dissectible human skull; a complete Azoux model of the human body; greatly enlarged Azoux models of the brain, eye, ear, and other organs; a set of the celebrated Leuckart zoological charts, and a good supply of specimens and dissections for illustrating the work in zoology, entomology and physiology. The advanced students' laboratory contains the entomological collection, a portion of the department library and twelve desks fully equipped for advanced work; while the research laboratory contains desk facilities for the head of the department and three assistants. It is provided with high grade compound and dissecting microscopes, a Minot rotating microtome, a Minot automatic precision microtome, water bath, incubator, hot air, and steam sterilizers, 10x12 copying camera, 5x7 view camera, 4x5 micrographic camera, laboratory balances, eye-piece, and stage micrometers, and an abundant supply of laboratory glassware, reagents and minor instruments.

The museum, which occupies most of the fourth floor of the Agricultural Hall, contains, in addition to a beautiful collection of native birds, a small collection of mounted mammals, a collection of bird skins from Alaska, a considerable collection of the eggs of native birds, a small collection of fishes and reptiles, a considerable number of marine invertebrates, including a small but beautiful collection of Philippine shells, an extensive collection of native insects, and numerous specimens of a miscellaneous nature.

Drawing. The department of drawing occupies two commodious class studios in the northwest corner of the second floor of Mechanical Hall. These rooms have north light, are perfectly heated and ventilated, and are well furnished with studio furniture—easels, drawing tables, portfolio racks and similar accessories. Both class rooms are equipped with cast forms for models; the collection is quite extensive and is comprised of casts of geometric figures and a carefully selected set of block casts of hands, feet and heads; casts of architectural objects, fruit, foliage, flowers, heads, masks, arms, hands and feet, and a number of full figure pieces in full and bas relief. There is also a good collection of objects for still life and color study.

The **Library** occupies two-thirds of the second floor of the Administration Building. The reading and general reference room is large, well lighted, and extends entirely across the building, and is liberally supplied with the leading periodicals, magazines and newspapers. Through the courtesy of the editors a large number of farm, orchard, stock and home journals and country newspapers of Oregon are received regularly at the reading room. The book stacks, occupying an adjacent room, contain over four thousand volumes of standard works of history, biography, engineering, agriculture, natural science, mental and moral philosophy, poetry, general literature and reference, and about 1500 reports and other publications from the Agricultural Colleges and Experiment Stations of all the states, and ten thousand bulletins and pamphlets. It is a designated depository of United States Government publications, of which it has more than six thousand volumes. Over two thousand of these were received as a gift from the library of the late United States Senator Dolph.

A beginning has been made in the establishment of reference libraries in the departments, and about two hundred and fifty volumes have been added to these during the past year.

All books are classified and catalogued both by authors and titles, according to the Dewey system, and are available to students and officers of the institution.

During the year the librarian will deliver a series of elective lectures upon the use of the library. The topics considered will include: Classification, arrangement, catalogue, printed indexes, dictionaries and encyclopedias, general reference books, United States government and state documents.

The Gymnasium. The main floor of the Armory is used for the general work in physical culture, while the work in special exercises and in taking measurements is conducted in several rooms of the basement. The equipment comprises a complete four-run bowling alley, a first-class indoor baseball diamond, excellent basket-ball and handball courts, complete physical testing machines, chest weights, parallel and horizontal bars, football dummy, vaulting blocks, horse, ladders, rings, punching bags, boxing gloves, wrestling and jumping mats, pole vault and high jump standards, hurdles, weights, hammers, disci, quoits, dumb bells and indian clubs in quantity. For field sports there is a fine athletic field, commodious grandstand and bleachers, quarter mile track, baseball diamond, tennis courts, golf links, and a covered course for track practice during inclement weather.

THE EXPERIMENT STATION.

The Station bears an important relation to the College, as the scientific investigations conducted at the Station strongly support the instruction given in the class room. Aside from the original investigations of economic significance to agriculture, the work of the Station affords daily object lessons in modern farm practices.

About one hundred and fifty acres of land are devoted to the uses of Station workers. This land is utilized by the various departments represented in the Station organization, including the departments of chemistry, agronomy, horticulture, animal husbandry, dairy husbandry, poultry husbandry, and entomology. Each department is actively engaged in the scientific investigation of problems presented by the different branches of agriculture.

As an illustration of the comprehensive character of this work, the following investigations, taken at random from the list of those now being conducted by the Station workers may be cited. The value of such work, as an object lesson to the students in the various fields of agriculture, can hardly be overestimated. There are experiments with long and short rotation systems for the improvement of soil fertility; tests to ascertain the adaptability and value of alfalfa for soiling and pasture; tests to determine the adaptability of kale as a winter succulent feed for dairy cows and other stock; experiments in breeding wheat for increase in both quantity and quality of yield and improvement in adaptation to soil and climatic conditions of the Willamette Valley; experiments in testing the value of irrigation in Western Oregon for general farm crops; tests for comparing the merits of Loganberries and Phenomenal berries; variety tests of strawberries; experiments in cross pollination of apples; co-operative work in the investigation of gummosis of the cherry; a study of the effects of the lime-sulphur spray under varying conditions; investigations of apple tree anthracnose, peach spot, potato blight, and celery leaf blight; a study of machine milking as compared with hand milking; investigations as to the relation of speed, the temperature, and the fat content of milk, to the cream produced by hand separators; co-operative investigations with the department of bacteriology relative to the best manner of using "cultures" in butter and cheese-making; experiments in incubation to discover, if possible, the cause or causes of the great losses in artificial incubation; comparisons between hen-hatching and incubator-hatching; the humidity conditions of natural and artificial methods of incubation; carbonic acid gas as a factor in incubation; feeding experiments to determine the value of various forage crops and cereals for the growing and fattening of hogs; experiments in the feeding of dairy cows; experiments in grazing and fattening swine; investigations in the economical production of beef and mutton.

COLLEGE SOCIETIES.

One of the most important factors in rounding out the results and benefits of a college course is the society, club, or association work. Because of the diverse interests of college life and the varied tastes of the students, the following organizations are maintained by students and faculty:

The Literary Societies. These ten organizations,—Sorosis, Pierian, Feronian, Utopian, and Clionian, for women; and Amicitian, Jeffersonian, Philadelphian, Zetagathean, and Athenaeum, for men,—have the common purpose of promoting literary work among the students. The weekly literary programs and occasional joint meetings tend to this end. To stimulate interest in debate and oratory, there are held during the year inter-society, -collegiate, and -state contests. Gold and silver medals are presented to the winners in the two latter events, and the successful society in the former, receives the "Gatch Cup." This is the silver cup that was presented in 1901 by Dr. Thomas M. Gatch, then President of the College, to the society that had received highest honors in the season's debates. Annually this cup is to go to the successful society in the debates, but is ultimately to become the property of the society winning it three years in succession. Many and determined have been the battles for its possession, but the cup is still without a permanent home.

The Christian Associations. The religious work of the College is well cared for by the Young Men's and Young Women's Christian Associations, these organizations being particularly strong. The Associations aim to provide a moral atmosphere and pleasant social advantages for the students. Religious meetings are held in the rooms of these organizations every Sunday afternoon, and Bible Study classes are regularly conducted. On registration days, committees are on hand to assist students in adjusting their work satisfactorily, and securing comfortable quarters in good homes. Those who wish to make their way through college will find the employment agencies always ready and glad to assist them as far as possible in procuring positions. For further information concerning these or other matters, address the General Secretary, **Y. M. C. A., Corvallis.**

The Agricultural Club. This club was established for the purpose of advancing interest in the various phases of agriculture, and promoting the investigation and discussion of both general and special agricultural subjects. Suitable programs are prepared for each meeting, and whenever practicable, leading authorities on practical agriculture are engaged to address the members.

The Lewelling Club. This is the horticultural club conducted under the auspices of the Horticultural Department. There is no regular organization, except an executive committee, which has power to transact such business as requires action on the part of the club. It is open to all students interested in horticulture.

Vorwaerts is the German club, the membership of which is restricted to students in second-year or advanced German. Its object is to familiarize its members with the use of German, especially in conversation. To this end, all conversation in the regular weekly meetings is carried on in this language, and programs consisting of German plays, songs, readings, and the like are features of the club work.

The Pharmaceutical Association. The main purpose of this organization, which consists of the pharmacy students, is to bring its members into close relation with the current events of the pharmaceutical world. This is brought about by discussions in the meetings of topics pertaining to pharmacy, and by addresses at various times during the year by prominent pharmacists and salesmen of the state.

The Engineering Association. The aim of this organization is: to instruct the members on subjects which, though outside the sphere of class room work, are intimately connected with engineering; to promote discussion on all subjects of interest; to emphasize the connection between the practical and theoretical; and to unite the individuals composing the School of Engineering.

The Household Science Club. This is a new organization for the purpose of bringing the girls of the Domestic Science and Art course into closer touch with each other and with the problems concerning their work. The meetings are devoted to the discussion of various questions in Domestic Science and Art, and to the presentation of lectures by authorities on these subjects.

The Forest Club. This is an association of students and instructors, "formed for the purpose of promoting the forestry interests of the state." In order to carry out its purpose, it meets twice each month for the discussion of current forestry literature, magazine articles, news items, legislation, and general progress movements pertaining to forests, forest service, forest products, forest industries, lumbering, and the lumber trade.

The Camera Club. The aim of this organization is the advancement of "camera craft." The regular discussions cover topics pertaining to lenses, cameras, camera outfits, plates, films, printing papers, negatives, lantern-slides, transparencies, and general technique, photographs for scientific purposes, photographic illustration, and demonstrations of material and processes.

The Electrical Engineers. This is a College branch of the American Institute of Electrical Engineers. The aim of the organization is to discuss the topics contained in the monthly proceedings of the A. I. E. E., and in this way develop an intimate knowledge of the national organization's activities, thereby coming into closer touch with the practical problems in the engineering world and thus becoming better fitted for their life work.

The Miners' Association. This body has for its object the discussion of technical engineering subjects; the review of current mining literature; the presentation of original papers by the active members, and occasional lectures on special mining topics by men outside of the College.

The Athletic Association. This organization, maintained by the students through the student body assembly, encourages wholesome competition in the various outdoor and indoor sports and pastimes. It has charge of all details pertaining to the conduct of intercollegiate athletics in which the College may be interested. A committee of the faculty has general supervision over the whole subject of athletics, thus insuring a sound and conservative management. The College administration encourages athletics in so far as they tend to develop a good physique, muscular and mental alertness, activity, and general physical development, for it is fully appreciated that a clear eye, an incisive mind and a skillful hand require for their highest efficiency a fully and symmetrically developed body, such as a judiciously conducted system of athletics and gymnastics can insure.

The Student Body Assembly is an organization of the entire study body, working under a constitution and by-laws approved by the faculty, and having general authority over all student enterprises. In order to secure an effective administration of the business coming within its jurisdiction, there are permanent committees on athletics, publications, oratory and debate, and such special committees as the assembly may by vote determine. Officers are elected yearly, and nominations and elections are conducted in a manner similar to that of the state electorate.

COLLEGE PUBLICATIONS.

Two classes of publications are issued from the College; one, official, published by the College authorities; the other, unofficial, and published by various student organizations.

The College publications include:

The Catalogue, published at the close of the College year and containing much general and specific information as to the courses of study, equipment and instruction;

The Summer School announcements, containing specific information of expenses, courses of instruction, character of the work presented, and the requirements that prospective students must meet;

The Winter School announcements, carrying such information regarding the winter courses as may fully present the advantages of these courses to the public;

The Department Circulars, with their specific and technical information, relating to the courses of study, departmental instruction, and those features of particular interest that appeal to the specialists along the several lines of industry represented by the various departments of the College, and

The Station Bulletins, a series of special reports upon experimental investigations in agronomy, horticulture, dairying, animal husbandry, poultry husbandry, insect pests, plant diseases, and special subjects of interest to the husbandman.

The student publications comprise:

The Barometer. In March, 1896, the literary societies of the College began the publication of a monthly periodical, the

"College Barometer." The enterprise has met with deserved success, and "the organ of the student body" is now issued as a four page, four column weekly. It publishes the "news of the College," literary and scientific articles, and is of general public interest as representing the interests, character and accomplishments of the student body of the College.

The Orange is the annual publication of the junior class, and made its initial appearance in 1907. It is a high-class publication, bound in flexible leather, and fully illustrated with photo engravings, pen and ink sketches, line and wash drawings. It is a compendium of college life as seen by the juniors, brimful of wit, humor, sarcasm, sentiment and good will.

The Oregon Countryman. A monthly magazine published by the Agricultural and Domestic Science and Art students under the supervision of the faculties of these courses. Besides dealing with the work of the various departments in a practical manner, it contains articles of scientific value contributed by the Experiment Station workers. Successful men and women of the State contribute articles for each issue. Agricultural education in the secondary schools and nature-study work are strong features.

The Northwest Journal of Engineering, is a magazine devoted to engineering and the mechanic arts. Its purposes are: To record the engineering progress in the Northwest; to furnish news; to discuss methods relating to the mechanic arts; to publish records of scientific work done by the students in this institution; and to publish any matter of special technical and scientific interest. Items of interest will be found for Civil, Mining, Mechanical, and Electrical Engineers, and for others who are engaged in technical pursuits.

The journal is under the supervision of the faculty of the School of Engineering and Mechanic Arts, but the work and responsibilities of publication are borne by the staff, elected by the students of the School of Engineering.

The Oratorical Association has immediate charge of all business pertaining to the competitive work in oratory and debate. Schedules, dates, prizes, conditions of competition and all similar matters are in its care.

STUDENT EXPENSES.

Tuition is free. The annual entrance fee for all full courses is five dollars; the fee for entrance to the winter courses is two dollars; the fee for graduation is five dollars; an incidental fee of two dollars, payable at the beginning of each semester, is required of all students.

Nominal fees are charged in most of the laboratory courses, varying from two to ten dollars a year, depending upon the course pursued and the kind, and grade of work being done.

Room and board may be secured with private families in the city of Corvallis for from three to four dollars a week. Many students by clubbing, or by renting rooms and boarding themselves, materially reduce the cost of living.

In the College dormitories, room and board cost approximately three and one-half dollars a week.

Waldo Hall, with its large, airy parlors, halls, music and play rooms, is a pleasant residence for the young women who come from distant homes. The building is supplied throughout with pure mountain water, hot and cold in each room, electric lights, steam heat and all modern conveniences. The rooms are furnished with an iron bedstead, a mattress, a chiffonier, a table and chairs. Such other materials as are needed to make the furnishings complete are supplied by the occupant. The hall is under the immediate management of the department of Domestic Science and Art.

Cauthorn Hall as a home for young men while in College offers many inducements. It has a capacity for one hundred students. Accommodations in this hall are similar to those described for the women's dormitory, with this exception: the students have formed a club, with the approval of the faculty, for the purpose of taking charge of all business pertaining to its management. In this way the student is able to live at actual cost of food and service.

ADMISSION AND GRADUATION.

CONDITIONS OF ADMISSION.

Candidates for admission must be at least fifteen years of age. The minimum age of those entering the elementary courses, in Agriculture, Forestry, Mechanic Arts, Domestic Science and Art, and Commerce; and the special winter courses, in Agriculture, Mechanic Arts, and Domestic Science and Art, is sixteen years. Those entering as special students must be at least eighteen years of age.

Good moral character is a requisite for admission. Students from other colleges or universities are required to furnish from those institutions certificates of honorable dismissal.

For admission to the Freshman class in any course in the College, the applicant must have completed all the subjects prescribed in the first and second years of the Oregon State high school course, or their equivalent. Certificates from accredited high schools and academies will be accepted in lieu of examinations. Students who have completed any of the elementary industrial courses offered by the College may be admitted without examination to the corresponding degree courses.

On account of the obligations the College is under to students who had previously entered upon their courses, the action of the Board of Regents in advancing the standard one year cannot go into effect until September, 1909. *Those students, therefore, who were in attendance at the College during the year* 1907-08 *will be allowed to continue their courses, and to graduate upon completion of the amount of work required at the time of entrance. In order to avoid carrying parallel courses of different standards, it will also be necessary to admit persons who matriculate in any of the degree courses in* 1908-09 *on the same basis as those who had previously been in attendance.*

To enter the elementary courses applicants must have completed the work required in the eighth grade of the public schools. These courses are established only for the benefit of persons who desire industrial training; and *no students will be admitted to them except those who live in parts of the State where no provision is made in the public high schools for industrial work.*

ACCREDITED SCHOOLS.

The accredited schools include, Allen Preparatory School, Hill Military Academy, Portland Academy, St. Helen's Hall, St. Mary's Academy; and all the public high schools that have at least a two years' course, with a year of nine months, and that have the subjects prescribed in the State high school course, or their equivalent. Certificates from schools not accredited will be considered as the merits of each case may warrant.

ADVANCED STANDING.

Certificates of work completed in other institutions of recognized standing may be received in lieu of examinations for advanced standing, to the extent that such work is equivalent to the corresponding work required in the College courses.

SPECIAL STUDENTS.

Persons of the required age may be admitted as special students provided they give satisfactory evidence of proper preparation for the studies desired. and have not already been admitted to the College, nor, having applied for admission, been rejected. Special students may be allowed to graduate in any of the courses on condition that they complete the required work and pass the necessary examinations.

IRREGULAR STUDENTS.

Applicants who meet all the entrance requirements may be admitted as irregular students, upon presenting satisfactory evidence that they are unable, because of poor health, or outside business or professional duties, to take a full course.

REGISTRATION.

All candidates for admission must present themselves for registration at the College on September 25 and 26, 1908. Registration at a later date will be permitted only on the presentation of a satisfactory reason for the delay. Students in all courses register at the beginning of the collegiate year for the work of the entire year. Credit for work not so registered, and changes in registration, will be allowed only by special permission of the College Council.

GRADUATION.

The degrees of Bachelor of Science in Agriculture, in Forestry, in Domestic Science and Art, in Civil Engineering, in Electrical Engineering, in Mechanical Engineering, in Mining Engineering, in Commerce, and in Pharmacy, are conferred upon those who have satisfactorily completed the respective four-year courses. A graduate of any of the courses may receive the bachelor's degree in any other course by completing the studies required in that course.

Advanced degrees are conferred upon graduates of this College, or other colleges and universities of approved standard, as follows: (1) Civil Engineer (C. E.), Electrical Engineer (E. E.), Mechanical Engineer (M. E.), and Mining Engineer (E. M.), upon those who have satisfactorily completed one year's graduate work in the respective engineering courses; (2) the degree of Master of Science (M. S.) in Agriculture, in Domestic Science and Art, in Civil Engineering, in Electrical Engineering, in Mechanical Engineering, and in Mining Engineering, upon those who satisfactorily complete two years' graduate work in the respective courses, at least one of which shall be in residence at the College, and who prepare a thesis, based upon original research, which shall show scholarly acquirements of a high order.

COURSES OF STUDY.

The Oregon Agricultural College offers the following courses of study, each of which extends over four years, and leads to the degree of Bachelor of Science: Agriculture, including degree courses in Agronomy, Animal Husbandry, Dairy Husbandry, Horticulture, Poultry Husbandry, Veterinary Science, Agricultural Chemistry, Bacteriology, Entomology, Forestry, Domestic Science and Art, Mechanical Engineering, Electrical Engineering, Mining Engineering, Civil Engineering, Commerce, Pharmacy.

In addition to the above degree courses, the Board of Regents has provided for the following elementary courses, which will be offered for the first time during the school year of 1908-9: Two-year courses in Agriculture, Forestry, Mechanic Arts, Domestic Science and Art, and Commerce.

During the year there are also offered the following Winter Short Courses: A ten-week course in Dairying; a six-week course in Horticulture; a six-week course in Mechanic Arts; a six-week course in Household Science and Art; a six-week course for Forest Rangers; a two-week course in Creamery Practice; a Farmers' Week, and a Summer School for Teachers.

COURSES IN AGRICULTURE.

The School of Agriculture offers a two-year course in Elementary Agriculture; a four-year course leading to the Degree of Bachelor of Science; a ten-week Winter Course in Dairying; a six-week Winter Course in Horticulture; a two-week Winter Course in Creamery Practice; and a Farmers' Week.

The **two-year course** is provided especially for those who have no opportunity to pursue their public school course beyond the eighth grade, or who, from necessity or choice, desire, upon completing the work of this grade, to obtain as quickly as possible a working knowledge of the principles of agricultural science and practice. The technical instruction given during the course includes courses in Agronomy, Animal Husbandry, Horticulture, Dairy Husbandry, Botany, Physiography, Business Administration, Drawing, Woodwork and Blacksmithing. Courses in English, Mathematics and History are provided so that students who finish these subjects and who so desire will be fully prepared to enter upon the degree course. This course also offers exceptional opportunities to teachers who desire to prepare themselves to teach elementary agriculture in the public schools. Such persons, if they so desire, may upon registering as Special Students, be allowed to elect a full complement of courses in Agricultural and Industrial Pedagogics, and thus be enabled to obtain a maximum of technical training in a minimum of time.

The **four-year course** is a continuation of the Elementary course, but pupils who have completed the work of the tenth grade of the public schools will be permitted to register without conditions.

The various subjects of instruction may be conveniently arranged into the three following groups, each of which requires approximately one-third of the student's time: (a) Sciences related to agriculture, i. e., Botany, Zoology, and Entomology, Chemistry, Physics and Bacteriology; (b) technical agricultural subjects, i. e., Agronomy, Animal Husbandry, Dairy Husbandry, Horticulture, Poultry Husbandry and Veterinary Science; (c) non-technical subjects, i. e., English Language and Literature, Mathematics, History, Economics, Modern Languages, Drawing, and similar subjects.

The subjects of the first group are designed to furnish the student with an insight into the principles of agricultural science. In the second group he learns of the application of these principles and also studies, both theoretically and practically, various subjects of agricultural technology. The subjects of the third group tend to further develop the student's intellect, broaden his view, and train him in good citizenship.

To indicate briefly the nature of the work, it may be stated that in the courses in Agronomy the student studies the origin, structure, fertility, cultivation, and improvement of various soils; the history, growth, culture, improvement, and value of the different field crops; the structure, machinery, drainage, and irrigation of the farm; and the history, economics, methods, and business principles of farm management. There is also a thorough course in Business Administration, which will be given by the department of Commerce. In the course in Animal Husbandry, consideration is given to the history and characteristics of the various breeds of live-stock; the principles of breeding; the principles and practices of feeding with particular reference to conditions in this State; and by almost constant practice in stock judging the student is made familiar with the good points of the various breeds. In Horticulture the student studies the problems of the orchard and garden, such as choice of site, soils, planting, pruning, choice of varieties, sprays and spraying, and thinning; he obtains instruction and practice in the propagation of plants by various methods; in the harvesting, packing, storage and marketing of fruits; he may study the principles of plant breeding or the construction and management of greenhouses or the culture of small fruits and vegetables for market or canning purposes. In Dairy Husbandry he studies the secretion, composition, and separation of milk; the proper handling of milk and cream; and obtains abundant practice in the use of the Babcock and other tests, in butter and cheese making and in creamery practice. A department of Poultry Husbandry has recently been organized and now offers to students exceptional opportunities to specialize in this line. The instruction will include a study of breeds, the principles of feeding, housing and incubation, and will be supplemented by practical work on the farm. The organization of a department of Veterinary Science has been authorized by the Board of Regents, but no course of instruction will be given during the school year, 1908-9.

The aim of the two and four-year courses is to train young men to become successful farmers, stockmen and fruit growers; to prepare them to become specialists in some branch of agricultural college or experiment station work, or to fit them to become teachers of agriculture in the public schools. In short, they offer to those who have faith in the farm and in rural life opportunities for intellectual development and technical training equal to those provided for the educated in other professions.

The one, two, and six-week courses are designed for special purposes, and it is the aim in each to furnish the greatest amount of special information in the least possible time. They are provided especially for those who desire technical training in some particular phase of agriculture, but have not the time nor the opportunity to pursue either of the above courses.

ELEMENTARY COURSE IN AGRICULTURE.

First Year.

	Semesters,	
	1st.	2nd.
English, 1, 2 (Grammar and Classics)	5	5
Mathematics, 2, 3 (Algebra)	5	5
History, 1, 2 (Ancient, Mediaeval, Modern)	3	3
Animal Husbandry, 1 (Breeds of Farm Animals)	2	
Agronomy, 1, 2 (Soils and Crops)	1	1
Horticulture, 1, 2 (Orchard Practice and Plant Propagation	2	1
Dairying, 1 (Farm Dairying)		2
Drawing, 1 (Freehand Drawing)	2	2

forest industries. There is a steadily growing demand for men

Second Year.

English, 3, 4 (Rhetoric and Classics)	5	5
Mathematics, 7, 8 (Geometry)	5	5
Animal Husbandry, 2, 3 (Veterinary Science)	1	2
Business Administration, 6 (Farm Accounting)	2	2
Dairying, 2 (Farm Dairying)	2	
Agronomy, 3 (Farm Mechanics)		2
Botany, 1 (Ecology)		2
Physiography, 1	3	
Shopwork (Carpentry and Blacksmithing)	2	2

DEGREE COURSE IN AGRICULTURE.

Freshman Year.

	Semesters, 1st.	2nd.
English, 4, 5, 6 (Rhetoric and Classics)	5	5
Mathematics, 9 (Trigonometry)	3	
Chemistry, 1, 2, 3	4	4
Botany, 2 (Morphology)		3
Zoology, 1 (Biology)	3	
Agronomy, 4 (Basic Agronomy and Crop Production)	3	2
Horticulture, 3 (Plant Propagation)		2
Animal Husbandry, 4 (Breeds of Stock)		2
Shopwork, 21 (Woodwork)	2	
Shopwork, 31 (Blackmithing)		2

Sophomore Year.

Physics, 3, 4	4	4
Modern Language	4	4
Economics, 1 (Elementary)		3
Botany, 3 (Plant Anatomy)	3	
Zoology, 2, 3 (Invertebrate and Vertebrate)	3	3
Agronomy, 6 (Irrigation and Drainage)		3
Horticulture, 4 (Orchard and Garden Practice)	3	
Animal Husbandry, 5 (Stock Judging)		3
Dairy Husbandry, 3 (Milk and Cream Testing)	2	
Bacteriology, 7 (Elementary)	1	

Junior Year.

English, 11, 12 (Debating and Public Speaking)	1	1
Modern Language	4	4
Major Elective	5	5
Minor Elective	6	6

Senior Year.

English, 13, 14 (Debating and Public Speaking)	1	1
English, 8 (The Essay)	2	2
Major Elective	5	5
Minor Elective	8	8

All students working for degrees will be required to carry 16 credits throughout the Junior and Senior years. Subjects other than those prescribed must be elected upon consultation with the head of the department with whom the major is taken. The major must be elected in one of the following departments: Animal Husbandry, Agronomy, Dairy Husbandry, Horticulture, Agricultural Chemistry, Bacteriology or Entomology. The minors may be elected from any of the above departments, or from the departments of English, Mathematics, Botany, Physics, or Civil Engineering. Students who so desire may elect a course in general agriculture upon consultation with the Agricultural Committee of the Faculty.

COURSES IN FORESTRY.

One of the greatest natural sources of wealth to Oregon is her forests. In establishing a course in Forestry at this College the aim has been to meet the demands of the public for men specially trained for the work of promoting the forest interests of the State. Realizing that great progress and development have been made within the past few years in the conservation and utilization of the forest crop, and that Oregon has an enormous forest wealth, there is a strong call for a force of young men competent to develop and manage forest properties and Forestry 2 throughout the year. especially trained for work in forest protection, conservation, utilization and development.

To meet such needs the College has provided a regular degree course of four years, which is to be supplemented with winter and summer short courses. While the leading course aims to provide students with a technical training, it does not lose sight of the fact that a College graduate and a forester should have a well-rounded education equipping him for efficient citizenship as well as for a special occupation. To this end the course of study covers a field of work somewhat more liberal than a purely technical course. At the same time the short courses and particularly the summer course, which is altogether field practice in general forestry, rounds out the student's training in the technical branches of the subject. Besides offering the student opportunities to secure a liberal and technical education in the general subject of forestry, it also affords him, through its various departmental laboratories, a wide range of privileges in the pursuit of special information upon particular topics, as construction work, timber technology, forest engineering, forest regeneration, tree-growth and tree-culture, the chemistry of forest products, utilization of forest waste, animal husbandry, forest protection, tree and timber diseases and pests, timber preservation, destructive distillation; and such other technical topics as appeal to the tastes of the individual student, the purpose being to educate and train a force of men competent to develop the forest interests of the state in their every phase, whether of public or private ownership.

ELEMENTARY COURSE IN FORESTRY.

First Year.

	Semesters, 1st.	2nd.
English, 1, 2 (Grammar and Classics)	5	5
Mathematics, 2, 3 (Algebra)	5	5
History, 1, 2 (Ancient, Mediaeval, Modern)	3	3
Forestry (Silviculture)	3	3
Drawing, 1 (Freehand)	2	2
Stenography, 4 (Typewriting)	2	2

Second Year.

English, 3, 4 (Rhetoric and Classics)	5	5
Mathematics, 7, 8 (Geometry)	5	5
Animal Husbandry, 2, 3 (Veterinary Science)	1	2
Business Administration, 6 (Accounting)	2	2
Forestry (Silviculture)	2	2
Botany, 1 (Ecology)		2
Physiography, 1	3	
Shopwork (Carpentry, Blacksmithing)	2	2

DEGREE COURSE IN FORESTRY.

Freshman Year.	Semesters, 1st.	2nd.
Forestry, 1, throughout the year.		
English, 4, 5, 6 (Rhetoric and Classics)	5	5
Mathematics, 9 (Trigonometry)	3	
Civil Engineering, 2 (Surveying)		5
Chemistry, 1, 2, 3	4	4
Botany, 2 (Morphology)		4
Zoology, 1 (Biology)	3	
Forestry, 4 (The Forest)	3	
Shopwork, 21, 31 (Woodwork and Ironwork)	2	2
Sophomore Year.		
Forestry, 2, throughout the year.		
Physics, 3, 4	4	4
Modern Languages (German, French, Spanish)	4	4
Zoology, 2, 3 (Invertebrate, Vertebrate)	4	4
Botany, 6, 9 (Morphology, Histology)	4	4
Forestry, 5, 6 (Dendrology, Forest Industries)	4	4
Junior Year.		
Modern Language	4	4
Mining Engineering, 5 (Economic Geology)		3
Zoology, 6 (Forest Entomology, special)		2
Chemistry (Special)	3	
Mechanical Engineering, 9 (Enginery)	2	
Forestry, 8, 9, 10 (Administration Economics)	4	4
Botany, 5 (Plant Anatomy)	2	
Agronomy, 10 (Climatology)		2
English, 11, 12 (Public Speaking)	1	1
Senior Year.		
Forestry, 11, 12, 13 (Lumbering, Policy, Protection)	8	5
Civil Engineering	5	5
Law	1	1
Fish and Game	1	
English, 13, 14 (Public Speaking)	1	1
Electives		4

COURSES IN DOMESTIC SCIENCE AND ART.

Housekeeping and homemaking offer to woman problems distinctly her own. To cope successfully with these problems requires a certain general education, and a comprehensive special training. The purpose of the School of Domestic Science and Art is to meet these needs by teaching the student how to apply the principles of science to the problems of daily living. This course offers instruction in home arrangement and furnishing; in the value and preparation of food; in the significance of real cleanliness; and in the principles of hygiene, together with culture in English, mathematics, history, literature, modern languages, and general science. The intent is to enable the student to reach the greatest possibilities for good along the line of her natural interests.

The School of Domestic Science and Art is provided with superior facilities for instruction and study. As now organized, the dean of the school lives in the girls' dormitory, Waldo Hall, over which she has charge. This arrangement makes it possible to give to the students practical instruction in the care of all parts of the house; in laundry work of various kinds; in the care of food materials; in cookery in all its phases, and in serving to large and small numbers.

Attention is given to the social life of the students. Indoor and outdoor games, walking, and all wholesome forms of recreation are encouraged, to the end that good taste in pastime as well as in work may be cultivated, and that the moral, physical and mental faculties may be symmetrically developed. Music, chorus singing and gymnastics form a part of the students' life.

The advanced work will prepare the graduate to cope successfully with problems of professional work.

ELEMENTARY COURSE IN DOMESTIC SCIENCE AND ART.

First Year.

	Semesters,	
	1st.	2nd.
English, 1 (Grammar)	3	3
English, 2 (Classics)	2	2
Mathematics, 2 (Algebra)	5	5
History, 1, 2 (Ancient, Mediaeval, Modern)	3	3
Drawing, 1 (Freehand)	2	2
Domestic Science, 1 (Principles of Cookery)	1	1
Domestic Science, 2 (Plain Sewing)	2	2
Domestic Science, 3, 4 (Home Economics and Hygiene)	1	1
Domestic Science, 5 (Nature Study)	1	1

Second Year.

English, 3 (Rhetoric)	3	3
English, 4 (Advanced Classics)	2	2
Mathematics, 4, 7, 8 (Geometry)	5	5
Botany, 13, 1 (Plant Cell and Ecology)	2	2
Business Administration, 7 (Household Accounting)	2	2
Domestic Science, 6 (Millinery)	1	1
Domestic Science (Advanced Cookery)	3	3
Domestic Science (Advanced Sewing)	2	2

DEGREE COURSE IN DOMESTIC SCIENCE AND ART.

Freshman Year.

	Semesters, 1st.	2nd.
English, 5, 6 (Rhetoric)	3	3
English, 4a (Advanced Classics)	2	2
History, 4, 5 (U. S. and English)	3	3
Zoology, 1 (Biology)	3	
Botany, 2 (Morphology)		3
Domestic Science and Art, 8 (Special Cookery)	3	3
Domestic Science and Art, 9 (Handiwork)	2	2
Domestic Science and Art, 6 (Millinery)	2	2
Domestic Science and Art (Household Plans)	2	2

Sophomore Year.

English, 7 (Exposition and Argumentation)	3	
English, 8 (The Essay)		3
Modern Language, or Latin	4	4
Zoology, 4 (Physiology)	3	3
Chemistry, 1, 4 (General)	4	4
Domestic Science and Art, 12 (Laundering)	1	1
Domestic Science and Art (Art Designing)	1	1
Domestic Science and Art, 11 (Basketry and Weaving)	2	2
Domestic Science and Art, 13 (Dietetics)	2	2

Junior Year.

Modern Language, or Latin (continued)	4	4
English, 11, 12 (Debating and Public Speaking)	1	1
Horticulture, 31, 32 (Floriculture and Landscape Gardening)	3	3
Major Electives	4	4
Minor Electives	4	4

Senior Year.

English, 13, 14 (Debating and Public Speaking)	1	1
English	2	2
Major Electives	5	5
Minor Electives	8	8

COURSE IN CIVIL ENGINEERING.

The purpose of this course is to give the student a thorough course of theoretical instruction, accompanied by as much laboratory and field practice as possible. The course includes such basic studies as English, Mathematics, Chemistry, Physics, Drawing, Materials of Engineering, Applied Mechanics and Hydraulics, in addition to the technical work given by this department. During the Junior and Senior years the student may take either German, French or Spanish, or, for special reasons approved by the head of the department, may elect English or other work instead. In addition to the required studies, the student has opportunity during these two years to elect from the other engineering courses subjects that may be of special interest to him, thus allowing a flexibility not otherwise possible.

Recognizing the value of drawing to the professional engineer as a means of expressing his ideas and of carrying out his plans, and also as a means by which the young graduate may enter some of the most desirable positions, the department lays special emphasis upon this subject. Besides the general course given in Mechanical Engineering and required of students in the course in Civil Engineering, two additional and more technical courses are required in the Civil Engineering course. One of these, a course in lettering and tinting, is given by the department of Art, the other by this department. Much additional drawing is required in connection with the preparation of plans and working drawings as part of the office work of the higher technical courses.

The work in Field Surveying begins with the Freshman year, and continues through the Sophomore year, with from six to ten hours of field practice a week. The student serves in subordinate positions at first, and gradually advances as a knowledge of the instruments is acquired until he is placed in charge of field parties and is held responsible for the results accomplished. During the Freshman year he is given practice in land surveying and leveling, and in topographic and railroad surveying during the Sophomore year. At all times conscientious attention to duty, accuracy and speed will be demanded. Full and carefully written notes of all work must be kept in the field. These, after being criticised, are transcribed and filed with the instructor.

In the study of Highways special reference is made to the conditions and needs in Oregon. Due consideration is given to the drainage, construction, and maintenance of dirt and gravel roads. In consequence of the vast area of the State, this class of roads must, of necessity, constitute the greater part of its highways for many years. The courses in theoretical and applied hydraulics cover a period of one and a half years. The various irrigation projects of Oregon offer excellent opportunities to our students and graduates.

DEGREE COURSE IN CIVIL ENGINEERING.

Freshman Year.	Semesters,	
	1st.	2nd.
English, 5, 6 (Rhetoric)	3	3
English, 4a (Advanced Classics)	2	
Mathematics, 5, 6, 9 (Algebra, Trigonometry)	5	5
Mathematics, 13 (Spherical Trigonometry)	1	
Chemistry, 1 3	4	4
Mechanical Drawing, 1	3	
Mechanical Engineering, 2 (Descriptive Geometry)		3
Civil Engineering, 2 (Surveying)		5
Drawing, 3 (Freehand Lettering)	2	

Sophomore Year.		
English, 8, 11, 12 (English and Public Speaking)	3	3
Mathematics, 10, 11, 12 (Geometry, Calculus)	5	5
Physics, 3, 4	4	4
Civil Engineering, 5 (Topographic Surveying)	4	
Civil Engineering, 6, 7 (Railroads)	1	5
Civil Engineering, 4 (Engineering Drawing)	3	
Mechanical Engineering, 2 (Blacksmithing)		3

Junior Year.

English, 13, 14 (Debating and Public Speaking)	1	2
Mechanical Engineering, 5, 6, 7 (Statics, Dynamics, Hydraulics)	4	4
Mechanical Engineering, 8 (Materials of Engineering)	2	
Mechanical Engineering, 11, 12 (Testing Laboratory)	2	2
Civil Engineering, 8 (Highway Construction)	3	
Civil Engineering, 16, 17 (Seminar)	1	1
Civil Engineering, 9 (Masonry and Foundations)		4
*Modern Language, or Elective	3	3

Senior Year.

Civil Engineering, 18, 19 (Seminar)	1	1
Civil Engineering, 10, 11 (Roofs and Bridges)	4	4
Civil Engineering, 12 (Sanitary Engineering)	3	
Civil Engineering, 13 (Water Supply Engineering)	3	
Civil Engineering, 15 (Contracts and Specifications)		1
Civil Engineering, 14 (Irrigation Engineering)		4
*Electives	5	6

COURSE IN ELECTRICAL ENGINEERING.

It is a fact well known to engineers that the development of water power in Oregon has only begun, and when all of the streams are generating electrical energy for railways, lighting and manufacturing purposes, there will be several millions of horse power continually in the service of mankind. The value of the output of the large hydro-electric plants then in operation will be enormous. Owing to the depletion of the coal supply with the progress of time, the water wheel must ultimately be substituted for the steam engine in the manufacturing of many

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*Electives in this course are subject to the approval of the head of this department. No credit will be given toward graduation for less than four semesters work in a Modern Language products. Processes in the reduction of metals; in the making of abrasives; and in the manufacture of chemicals, including nitric acid and nitrates, for fertilizers, may all be carried on in this State to advantage because of the cheapness of electrical energy obtained from the mountain streams. The field of electro-chemistry is a promising one to those who have tastes leading them in that direction. The installation and operation of power systems will require the employment of many highly trained young men.

Because of these great opportunities much stress is laid upon the studies which will best fit the student for his chosen work. The course is so designed, however, that theory given in the class room is supplemented by its practical application in the shops and laboratories.

The first two years are devoted to the same studies as are required in Mechanical Engineering. At the beginning of the third year the real professional work is taken up and continued to the end of the course. A study is made of the structure and principles involved in the design of the several types of dynamos, and electrical appliances; of the operation of machines and apparatus; of their commercial applications; and of the phenomena incident to the use of high tension alternating currents, the College substation of a long-distance transmission line being available for illustrative and testing purposes.

At present the students have completed, or have in different stages of construction, machines and equipment approximating 90 kilowatts, or 120 horse power, as follows: One 12 kilowatt three phases revolving field alternator; one 10 kilowatt unipolar dynamo; six 5 kilowatt compound direct current generators; six 3 kilowatt compound direct current generators; one 7½ horse power three phase induction motor; one 5 horse power quarter phase induction motor; two 4 kilowatt double current generators; one 10 kilowatt 110,000 volt testing transformer; one large switchboard; one alternating current rectifier set; one oscillograph (three phase); one large static machine.

DEGREE COURSE IN ELECTRICAL ENGINEERING.

Freshman Year.

	Semesters,	
	1st.	2nd.
Mathematics, 5, 6, 9 (Algebra, Trigonometry)	5	5
English, 5, 6 (Rhetoric)	5	
English, 4 (Advanced Classics)		5
Mechanical Engineering, 1 (Mechanical Drawing)	3	
Mechanical Engineering, 2 (Descriptive Geometry)		3
Mechanical Engineering, 19, 20 (Shopwork)	3	3
Chemistry, 1, 3 (General and Qualitative)	4	4

Sophomore Year.

Mathematics, 10, 11, 12 (Analytical Geometry, Calculus)	5	5
Modern Language (German, French, Spanish)	4	4
Physics, 3, 4	4	4
Mechanical Engineering, 3 (Mechanical Drawing)	4	
Mechanical Engineering, 4 (Mechanism)		4
Mechanical Engineering, 28, 29 (Blacksmithing, Machine Shop)	3	3

Junior Year.

Mechanical Engineering, 5 (Statics and Dynamics)	4	
Mechanical Engineering, 6 (Strength of Materials)		4
Modern Language (Continued)	4	4
Electrical Engineering, 1 (Dynamo Electric Machinery)	3	
Electrical Engineering, 6 (Electrical Engineering Laboratory)		2
Electrical Engineering, 2 (Alternating Current Machinery)		3
Electrical Engineering, 4 (Electric and Magnetic prenticeship, will be able to assume the full management of Measurements)	2	
English, 11, 12 (Debating and Public Speaking)	1	1
Mechanical Engineering (Shopwork)	2	
Mechanical Engineering, 10 (Steam Machinery)		2

Senior Year.

Electrical Engineering, 3 (Advanced Alternating Currents)	3	
Electrical Engineering, 10 (Power Plants)		3
Electrical Engineering, 8 (Electrical Distribution)	2	
Electrical Engineering, 6 (Electrical Engineering Laboratory)	2	
Electrical Engineering, 7 (Electrical Engineering Laboratory)		2
Electrical Engineering, 9 (Electrical Design)	3	
Electrical Engineering, 11 (Power Plant Design)		2
Mechanical Engineering, 12 (Mechanical Engineering Laboratory)		2
Mechanical Engineering, 15 (Thermodynamics)	3	
Electrical Engineering, 12, 13 (Seminar)	1	1
English, 13, 14 (Debating and Public Speaking)	1	1
Electrical Engineering, 16 (Thesis)	1	2
Economics		3

COURSE IN MECHANICAL ENGINEERING.

The course in Mechanical Engineering has for its purpose the preparation of young men for positions of usefulness and responsibility in the industrial life of the country.

The Pacific Northwest is just now entering upon a period of rapid progress in the building of railroads; the development of water power; the marketing of forest products; and the upbuilding of manufactories, all of which require men conversant with the general principles of engineering. It is the purpose of all engineering courses to contribute to this general advancement by turning out graduates equipped with the necessary knowledge and skill to make them active factors in this great work.

It is the general plan of the course in Mechanical Engineering to lay a broad foundation in English, mathematics, chemistry, and physics, accompanied by drawing and shopwork, during the first two years of the course. The work of the last two years is more technical and professional in its nature, consisting in a study of the principles involved in the development of power by steam engines, water wheels, gas and gasoline engines and steam turbines. It also involves a critical study of the design of machines and materials entering into their construction, as well as tests to determine their efficiency.

Instruction is given by means of lectures, recitations, and laboratory exercises. The scientific principles involved in machines and mechanical movements are taught in the class room as well as the application of mathematics to the solution of problems in mechanical engineering. In the shops, the student learns the use of tools and the value of different methods of doing work from the standpoint of economical construction. In the drafting room, he learns to make working drawings and blue-prints of machines, and to formulate designs of his own.

With these advantages to aid him, the ambitious student should be able to take and maintain a position in the general industrial and engineering development which is the leading characteristic of the age in which we live.

DEGREE COURSE IN MECHANICAL ENGINEERING.

Freshman Year.	Semesters, 1st.	2nd.
English, 5, 6 (Rhetoric)	3	3
English, 4 (Advanced Classics)	2	2
Mathematics, 5, 6, 9 (Algebra, Plane Trigonometry)	5	5
Chemistry, 1, 3	4	4
Mechanical Engineering, 1 (Mechanical Drawing)	3	
Mechanical Engineering, 2 (Descriptive Geometry)		3
Mechanical Engineering, 19, 20 (Shopwork)	3	3
Sophomore Year.		
Mathematics, 10, 11, 12 (Analytical Geometry, Calculus)	5	5
Modern Language (German, French, Spanish)	4	4
Physics, 3, 4	4	4
Mechanical Engineering, 3 (Mechanical Drawing)	4	
Mechanical Engineering, 28, 29 (Blacksmithing)	3	3
Mechanical Engineering, 4 (Mechanism)		4

Junior Year.

English, 11, 12 (Debating and Public Speaking)	1	1
Modern Language (Continued)	4	4
Mechanical Engineering, 5, 6 (Statics, Dynamics)	4	2
Mechanical Engineering, 8 (Materials of Engineering)	2	
Mechanical Engineering, 7 (Hydraulics)		2
Mechanical Engineering, 11, 12 (Engineering Laboratory)	2	2
Mechanical Engineering, 34, 35 (Machine Shop)	3	3
Mechanical Engineering, 10 (Steam Machinery)		2

Senior Year.

English, 13, 14 (Debating and Public Speaking)	1	1
Mechanical Engineering, 13, 14 (Machine Design)	4	4
Mechanical Engineering, 15 (Thermodynamics)	3	
Mechanical Engineering, 18 (Hydraulic Motors)	2	
Mechanical Engineering, 16 (Internal Combustion Motors)		2
Mechanical Engineering, 17 (Steam Turbines)		2
Thesis	1	2
Elective	5	5

COURSE IN MINING ENGINEERING.

The course in Mining Engineering is planned to give the student a thorough knowledge of the principles which form the groundwork of the sciences of Mining and Metallurgy.

It is the aim of the Mining Engineering Department in arranging the courses to give the student first a drill in the fundamental studies common to all engineering courses, such as Mathematics, English, Physics, Drawing, Mechanics, etc. In the latter part of his course he applies the principles of these fundamental studies to the more distinctive mining subjects, such as Mineralogy, Geology, Mining, Mine Surveying, Metallurgy, and Ore Dressing.

The methods of instruction include the ordinary lecture, text book and recitation work, supplemented as far as possible by problems and illustrations drawn from actual mining and metallurgical practice. The successful mining engineer deals largely with concrete problems, hence the laboratory method of instruction is given a very important place in the training of the student. A portion of the last two summers is devoted to summer school work in Mine Surveying, and Mining and Metallurgical inspection. The students are required to keep systematic notes on the summer work, and to turn in to the professor in charge a complete report. On these trips of inspection, visits are made to plants which exemplify, often on a large scale, the application of principles taught in the class room to problems of commercial operation. This practical method vivifies the teaching and gives the student a clear comprehension and firm grasp of the subject.

Students who pursue the Mining Engineering course to completion are expected to be able to undertake any of the vocations of the young mining engineer, such as Assaying, Mine Surveying, Scientific Prospecting, and after a short ap- and more scientific aspect. Two distinct courses are offered: a mining and metallurgical enterprises.

DEGREE COURSE IN MINING ENGINEERING.

Freshman Year.	Semesters, 1st.	2nd.
Mathematics, 5, 6, 9 (Algebra, Trigonometry)	5	5
English, 5, 6 (Rhetoric)	3	3
English, 4 (Advanced Classics)	2	
Chemistry, 1, 3 (General, Qualitative)	4	4
Mechanical Engineering, 19 (Shopwork)	3	
Mechanical Engineering, 1 (Mechanical Drawing)	3	
Mechanical Engineering, 2 (Descriptive Geometry)		3
Civil Engineering, 2 (Surveying)		5
Sophomore Year.		
Mathematics, 10, 11, 12 (Analytical Geometry, Calculus)	5	5

Physics, 3, 4	4	4
Chemistry, 5 (Qualitative Analysis)	4	
English		2
Mining Engineering, 1 (Crystallography)	4	
Mining Engineering, 2 (Mineralogy)		5
Mining Engineering, 3 (Geology)		4
Drawing, 3 (Lettering)	1	
Mechanical Engineering (Blacksmithing)	2	

Junior Year.

Mechanical Engineering, 5, 6 (Statics and Dynamics)	4	
Mechanical Engineering, 4 (Mechanism)		4
Mining Engineering, 8 (Mine Surveying)	3	
Mining Engineering, 12 (Assaying)		4
English, 11, 12 (Debating and Public Speaking)	1	1
Mining Engineering, 16 (Seminar)	1	1
Mining Engineering, 14 (Metallurgy of Iron and Steel)		3
Mining Engineering, 7 (Excavating and Tunnelling)	3	
Electives	4	3

Senior Year.

Mining Engineering, 6 (Lithology)	2	
Mining Engineering, 5 (Economic Geology)	3	
Mining Engineering, 9 (Mining)		3
Mining Engineering, 16 (Seminar)	1	1
English, 11, 12 (Debating and Public Speaking)	1	1
Mining Engineering, 10 (Ore Dressing)	3	
Mechanical Engineering, 11 (Engineering Laboratory)	2	2
Civil Engineering, 15 (Contracts and Specifications)		1
Mining Engineering, 11 (Mining Law)		1
Thesis		3
Electives	4	4

Note.—Electives in this course are subject to the approval of the head of this department. No credit in Modern Languages will be given toward graduation for less than four semesters' work.

COURSE IN MECHANIC ARTS.

The course in Mechanic Arts affords opportunity to those who have completed the eighth grade state examinations to continue their studies in English, mathematics, and history, and also to devote a portion of their time to industrial work, such as drawing and manual training. It is thought that this course will be helpful to those who desire to become workers in wood or metal; to those who wish to teach industrial work in the schools of the state, or elsewhere, as well as to those who intend to take one of the degree courses later. The scope of the work is necessarily more limited than in the degree courses, but special stress is laid upon the industrial features. The tendency of modern education is toward industrial training. Many believe that this training should begin in the common schools. If so, colleges and secondary schools must supply teachers who are proficient in this work.

The department of Mechanic Arts, with its new equipment and better organization, is peculiarly well fitted to supply this demand. The student is brought into actual contact with the work itself by being required to become proficient in the construction of useful articles of wood and iron. The purpose throughout is to combine the training of mind, hand and eye in such manner as to enable the student to formulate plans rapidly and execute them skillfully.

Considerable latitude is allowed in the selection of the industrial work. The student may elect woodwork alone if he so desires, and may choose either cabinet work or patternmaking, or he may devote his entire time to ironwork, taking blacksmithing, plumbing, or steam fitting.

ELEMENTARY COURSE IN MECHANIC ARTS.

First Year.

	Semesters,	
	1st.	2nd.
Mathematics, 2, 3 (Algebra)	5	5
English, 1 (Grammar)	3	3
English, 2 (Classics)	2	2
History, 1, 2, 3 (Ancient, Mediaeval, Modern)	3	3
Drawing, 1 (Freehand)	2	2
Mechanical Engineering, 22, 23 (Shopwork)	5	5

Second Year.

Mathematics, 4, 7, 8 (Algebra, Geometry)	5	5
English, 3 (Rhetoric)	3	3
English, 4 (Advanced Classics)	2	2
Physics, 1, 2 (Elementary)	3	3
Business Administration, 7 (Accounting)	2	2
Mechanical Engineering. 24, 25; 26, 27; 30, 31; 32, 33 (Shopwork: Blacksmithing, Steam Fitting, Plumbing, or Woodwork)	5	5

COURSE IN COMMERCE.

The most progressive colleges and universities are now offering courses in commerce and finance. These courses have rapidly gained favor in response to an almost universal demand for thoroughly trained men to assume leadership in the commerce of the world.

The School of Commerce has been established in harmony with this modern tendency in education. Its aim is to do for the business man what the trade school does for the mechanic, what the school of engineering does for the engineer. or what the school of law does for the lawyer. It does not claim to turn out finished business men or "captains of industry" but men who shall seek, and be prepared to assume, the responsibilities of commercial and financial leadership after a comparatively short apprenticeship and practical experience.

A thorough business course, therefore, covers more than a study of bookkeeping, commercial law, and penmanship, though all are subjects of the greatest importance. Thorough courses in English, economics, modern languages, mathematics, natural sciences, etc., are equally important. In fact, all are in a sense only means to one end: to facilitate the profitable exchange of commodities in the form of property or service. Hence the advantage of incorporating business courses into the curricula of the higher institutions of learning where courses in the basic subjects are already given.

The professional courses offered by the School of Commerce have been arranged and selected with special reference to two classes of students: the prospective business manager, and the office employee. The latter studies chiefly the methods and arts of commerce, while the former pursues his course from a broader two-year course leading to a certificate of graduation, and a four-year course leading to the degree of Bachelor of Science. The Theory and Practice of Accounts, Stenography, and Commercial Law, are the principal technical subjects in the two-year course; while Economics, Trade and Transportation, Banking and Finance, Political Science, International Relations, and Public Accounting and Administration, are the professional subjects in the degree course. Special stress is laid on English in both courses, and the cultural development of the student is duly emphasized.

But while the School of Commerce emphasizes work preparatory to commercial pursuits, the fact that there is a business side to every vocation has been recognized by providing, in the second year of all elementary courses, a two-hour course in Business Methods, especially adapted for the farmer, mechanic, housekeeper, professional man, etc. The exceptional laboratory and library facilities of the department are enjoyed by all students alike.

The Commercial course is especially attractive as a preparation for law; for teachers of commercial subjects; for public accountants, for administrative secretaries, and as a preparation for the Civil Service.

ERRATUM.—After the word "broader" in the fifth line of the second paragraph from the top of page 76 read:—and more scientific aspect. Two distinct courses are offered; a—

ELEMENTARY COURSE IN COMMERCE.

First Year.

	Semesters, 1st.	Semesters, 2nd.
English, 1 (Grammar)	3	3
English, 2 (Classics)	2	2
Mathematics, 2 (Algebra)	5	
Mathematics, 14 (Commercial Arithmetic)		5
Law and Government, 1 (Civics)	3	
History, 2 (Modern, Mediaeval)		3
Drawing, 1 (Freehand)	2	2
Business Administration, 2, or Stenography, 1	5	5

Second Year.

English, 3 (Rhetoric)	3	3
English, 4 (Advanced Classics)	2	2
Mathematics, 4, 7, 8 (Algebra and Geometry)	5	5
Law and Government, 2 (Commercial Law)	5	
Economics and Sociology, 1		3
Botany, 1 (Ecology)		2
Business Administration, 3, or Stenography, 2	5	5

DEGREE COURSE IN COMMERCE.

Freshman Year.

	Semesters, 1st.	Semesters, 2nd.
Mathematics, 9 (Trigonometry)	3	
Chemistry, 1 (General)	4	
Chemistry, 2, 3 (Qualitative Analysis)		4
History, 4 (United States)		3
Modern Language (German, French, Spanish)	4	4
English, 5, 6 (Rhetoric)	3	3
English, 4 (Advanced Classics)	2	2
Business Administration, 4, or Stenography, 3	4	4

Sophomore Year.

Modern Language (Continued)	4
Zoology, 2 (General)	3
Zoology, 4 (Physiology)	
Physics, 3	4
History, 5 (English)	
Banking and Finance, 1 (Money and Banking, Corporation Finance)	3
Trade and Transportation, 1 (History of Commerce)	3
Production and Manufacture, 1 (Commercial Geography)	3
Production and Manufacture, 3 (Local Industries)	

Junior Year.

Mathematics, 15 (Higher Commercial Statistics)	3
Economics and Sociology, 2 (Advanced Economics)	2
English, 11, 12 (Debating and Public Speaking)	1
Chemistry, 17 (Industrial)	3
Mining Engineering, 18 (Economic Geology)	
*Electives	7

Senior Year.

Law and Government, 4 (Comparative Study of Governments)	3
Law and Government, 5 (International Law)	
English, 13, 14 (Debating and Public Speaking)	1
*General Electives	6
Electives in Commerce and Thesis	6

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*Special emphasis should be laid on English. Students wh are preparing for law are advised to take a course in Latin.

COURSE IN PHARMACY.

It is now so generally recognized and so universally admitted as to need but passing comment, that in order to attain to any degree of success in a scientific profession it is necessary to be thoroughly trained in the sciences upon which the profession is based.

With reference to the profession of pharmacy, it may truly be said that it is one of applied sciences, since the pharmacist has constant use for a knowledge of the sciences of chemistry, of physics and botany. It is, therefore, of utmost importance to the individual who has decided to enter upon a pharmaceutical career, that he begin properly in the matter of an education. The institution in which the study of the natural sciences is prominently featured is, without doubt, the one best qualified to afford him the training suited to his particular needs. In this connection, attention is directed to colleges of the land grant, or agricultural type. Financed by State and Federal governments, the material welfare of institutions of this class is assured. With unusual facilities in the way of laboratories and equipment, and with an instructional force selected especially for the purpose, they are prepared to offer exceptional advantages for mental and manual training in those professions having for their foundation a knowledge of the sciences.

In recognition of the fitness of conditions and of an apparent need for such instruction, the Oregon Agricultural College, in 1898, added to its curricula a course in pharmacy, the purpose of which it to afford the young men and women of the state an opportunity of obtaining a thorough training in the theoretical and practical features of this profession.

The course comprehends instruction in class and lecture-room, in extensive practice in the laboratory, and excursions afield in botany. The value of laboratory practice is fully appreciated; it is in this connection that facts mentioned in text book and lecture are brought to the student's notice in a way that the importance is emphasized, the significance demonstrated and the fact itself fixed in the mind. In the pharmaceutical laboratories the student becomes experienced in the manufacture of medicinal preparations and in filling prescriptions. In the laboratories of chemistry, of botany, of bacteriology, of physics and of biology he gains valuable experience in connection with each of these related sciences. It is expected, and not without reason, that owing to the nature and extent of the instruction given, graduates of this course will be qualified to assume positions of trust and responsibility in the professional world. Not only is this training of benefit to the pharmacist, but it forms an ideal pre-medical course.

The enactment of the Pure Food and Drug law of 1906 has opened a new and attractive field for those who are proficient in chemical and pharmaceutical knowledge. Laboratories for the examination of food and drug samples are being established in the various large cities of the country by the Federal government. Positions in these laboratories are, in many instances, held by graduates of pharmacy.

Two courses are offered; one for four years, leading to the degree of Bachelor of Science in Pharmacy. The other is a short course, of two years, for the completion of which a certificate is given.

A clause in the revised pharmacy law of this state, enacted by the Legislature, session of 1907, stipulates that a candidate for registration as a licentiate of pharmacy, before being eligible for examination by the State Board of Pharmacy, must have had four years of practical experience in a store where prescriptions and medicines are dispensed. Three years of such experience is required of the candidate for registered assistant pharmacist. The Oregon Board of Pharmacy, by special resolution, has granted students who complete the four years' course in pharmacy at this institution, the privilege of taking the senior examination as given by the Board, and to those who complete the two-year course, the privilege of the junior examination, the regulation with reference to store experience being waived.

The Laue Prize. Mr. Jno. M. A. Laue, prominent in business and professional circles of Portland prompted by the desire to encourage students to strive for a high degree of attainment and efficiency, has very generously established an annual prize of $50, to be divided between the two students in the pharmacy course of this institution who shall make the best showing in their work. The prize is so apportioned that $35 is awarded to the one in the four-year course who shall have the highest standing, and $15 to the one of like standing in the two-year course.

DEGREE COURSE IN PHARMACY.

Freshman Year.

	Semesters,	
	1st.	2nd.
English, 5, 6 (Rhetoric)	3	3
English, 4 (Advanced Classics)	2	2
Mathematics, 9 (Trigonometry)	3	
Latin, 1	4	4
Chemistry, 1, 2, 3 (General, Qualitative)	4	4
Botany, 3 (Morphology)		3
Business Administration, 1 (Accounting)	2	2
Drawing (Freehand)	2	2

Sophomore Year.

Modern Language (French, German, Spanish)	4	4
Chemistry, 6, 9 (Organic Quantitative)	4	4
Physics, 3	4	4
Botany, 6 (Histology)	3	
*Business Administration, 2 (Accounting)	5	5
Economics		3

Junior Year.

English, 11, 12 (Debating and Public Speaking)	1	1
Modern Language (French, German, Spanish)	4	4
Chemistry, 10 (Pharmaceutical Analysis)	2	4
Zoology, 4, 5 (Physiology and Hygiene)	3	3
Pharmacy, 1 (General)	2	
Pharmacy, 2 (Nomenclature)	1	
Pharmacy, 3 (Pharmacognosy)	1	

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*English (five credits) may be elected in place of Business Administration.

Pharmacy, 4 (Therapeutics)	2	
Pharmacy, 5 (General)		2
Pharmacy, 6 (Pharmacognosy)		2

Senior Year.

English, 13, 14 (Debating and Public Speaking)	1	1
Bacteriology, 8, 9 (General and Practical)	3	3
Zoology (Advanced Physiology)	3	3
Pharmacy, 7 (General)	3	
Pharmacy, 8 (Materia Medica)	3	
Pharmacy, 9 (Prescription Practice)	3	
Pharmacy, 10 (Prescription Practice)		5
Pharmacy, 11 (Materia Medica)		4

DEPARTMENTS OF INSTRUCTION.

AGRONOMY.

Professor Scudder.
Mr. Hyslop.

Agronomy is the science of the fields and the crops of the fields. Instruction in this science is offered by the Department of Agronomy in the following subjects:

(a) Soils; their origin, structure, fertility, cultivation, and improvement.

(b) Field Crops; their history, growth, culture, improvement and value.

(c) Farm Mechanics; the structures, machinery, drainage, and irrigation of the farm.

(d) Farm Management; the methods, business priciples, history, and economics, of farming.

In every subject, instruction is accomplished equally through class room, laboratory and field work; theory is checked by practice. For the latter methods of instruction the well equipped laboratories of this department, the various soil conditions, numerous experimental crops, and extensive structures of the Experiment Station farm, offer excellent material. The large and newly equipped laboratories for the courses in Field Crops and the courses in Soils in the new Agronomy building are not excelled by those of any institution in the west.

The elementary courses in Agronomy deal only with the practical application of the underlying principles of agriculture to specific conditions—aiming to give the less well prepared student as much information as possible in a short time, concerning those practices most vital to successful farming—to send him back to the farm better prepared to cope with its problems. These courses serve also to prepare the student for collegiate Agronomy.

The object of the collegiate courses in this department (aside from giving an excellent practical education) is to fit the student for successful farming or farm management along these special lines; to prepare him for service in the U. S. Department of Agriculture, in the Bureaus of Soils and Plant Industry; or to train him for Experiment Station or Agricultural College work, of this kind.

Agronomy 1, 2 and 3, are prescribed for all collegiate agricultural students. The succeeding courses are the majors and minors offered to the upper classmen in Agriculture who elect Agronomy as their specialty. Majors and minors are then determined upon by conference between the student and the head of the department. Liberal electives in other departments are permitted where advisable.

1. **Soils.** A brief history of the origin of soils; the fertility of soils; the most valuable chemical constituents; their exhaustion and replenishment; the most important physical factors; their deterioration or improvement. The physical components; their relative value and amounts in soil mixtures. Practice in judging the chief soil types of Oregon. The effects upon soils of tillage, manuring, crop rotation, drainage and irrigation.

Required in the Elementary course in Agriculture; first year; first semester; one credit; one laboratory period.

2. **Crops.** A brief consideration of the adaptability, relative value, and best methods of growing, the chief cereal, grass, legume and succulent crops of Oregon for grain, pasture, meadow, soiling, silage or seed purposes. Investigation of the sources of crop seed and the importance of seed purity and germinating power, with methods of testing same. Eradication of the most common weed, insect, and fungous enemies of field crops.

Required in the Elementary course in Agriculture; first year; second semester; one credit; two lectures.

3. **Mechanics.** A study of some of the mechanical principles involved in farm operations and their application in labor saving devices for farm work. The structure and uses of the best types of farm machines. The designing and construction of barns,

silos, hog houses, sheep sheds. Fencing problems; the division of fields; the location of farm buildings and lanes.

Required in the Elementary course in Agriculture; second year; second semester; two credits; three lectures.

4. **Basic Agronomy.** This course is, of necessity, elementary and general in its nature—an introduction to agriculture—seeking to interest the new student in farm life through first knowledge of the fields, the crops, the mechanics of the farm; or in agriculture as a science, through the wide range for scientific study and investigation it offers, the possibilities in the fields still unexplored; or to interest him in agriculture as a business, through its profits as a practice, and its opportunities as a profession. During the semester instruction is given in the elementary facts concerning the origin and formation of soils; soil moisture, heat and air; common soil processes, physical and chemical; plant foods and soil fertility; tillage, crop rotation and manuring; important soil bacterial action; the benefits derived from drainage and irrigation; common farm machines, their use and care. The course will close with a brief survey of the agriculture of the state. Instruction will be given through lectures and notes, text and recitation, laboratory, and field observations.

Required in the course in Agriculture; freshman year; first semester; three credits; one lecture; two laboratory periods.

5. **Crop Production.** The study of the chief field crop seeds of Oregon; wheat, barley, oats, corn, vetch, clover, alfalfa, grasses, etc.; their vitality, germination, preservation, growth and reproduction; preliminary judging; seed bed and seeding; climate and soil; culture and rotation; enemies, their prevention and eradication; harvesting, marketing and profits; distribution and value to the state; methods of crop improvement. Class room, laboratory and field work.

Required in the course in Agriculture; freshman year; second semester; two credits; one lecture; one laboratory period.

6. **Drainage and Irrigation.** The history of drainage and of irrigation; road, field, and sanitary drainage on the farm; the different systems of drainage and of irrigation; methods of locating, installing, operating and maintaining drainage and

irrigation conduits; cost, efficiency and profits of; crops and soils adapted to; laws governing. Lectures, notes, readings and field work.

Required in the course in Agriculture; sophomore year; second semester; three credits; one recitation; two laboratory periods.

7. **Soil Physics.** Advanced study of the geology of soils—origin, formation, composition, and classification. Soil moisture and fertility, and their conservation. The various physical processes of the soil—surface tension, osmosis, capillarity and diffusion. The effects of the various crops and the different methods of culture upon the texture, aeration, temperature, moisture and plant food supply of the soil, and the resulting alteration in crop producing power. The influence of washing, drainage, and irrigation, upon soils. Work in the laboratory will consist of the determination and comparison of such physical properties in the various soil types as, specific gravity, weight and volume, water retention, capillary power, etc.; the effect of mulches, rotations, and cropping; the mechanical analysis of soils.

Elective; first semester; five credits; one lecture; four laboratory periods.

8. **Cereal Crops.** A study of grains with special reference to those of Oregon and the varying conditions of soil and climate under which they are grown; the culture and rotation best adapted to each; the various methods of harvesting and storage; the judging of grain; grading for market; markets and uses of each crop; improvement of crop seed; plant breeding.

Elective; first semester; five credits; one recitation; four laboratory periods.

9 **Farm Mechanics.** Field machinery; farm buildings; fences, and roads. The construction, setting up, testing, and working of all classes of modern farm machinery: plows, harrows, cultivators, weeders, drills, planters, seeders, mowers, rakes, binders. wagons, etc. The design and construction of farm buildings, barns, granaries. and silos; their arrangement and cost. The various kinds of fencing; cost, construction, and

quality. Methods of road and walk construction, and cost of same.

Elective; second semester; five credits; three recitations; two laboratory periods.

10. **Climatology.** Practical meterology; observing and recording local weather; a study of the climate of Oregon and the effect of climate upon agriculture; class room and laboratory work.

Elective; second semester; two credits; two laboratory periods.

11. **Soil Fertility.** The effect of the various crops upon the fertility of the soil. The maintenance or improvement of fertility by the use of fertilizers and manures; the composition and value of the different fertilizers and manures. The effect of various rotations upon fertility. The fertility of the different types of Oregon soils; their plant food requirements and comparative value; methods of improvement of each. The effects of different systems of farming. Analysis, field plot, and pot culture investigations.

Elective; first semester; five credits; four recitations; one laboratory period.

12. **Agrostology.** A study of the grasses and forage crops. Methods of seeding for meadow, pasture, and soiling crops; maintenance of meadows and pastures; harvesting, curing, storing baling, and using the various meadow crops; grazing, siloing, and soiling. The botanical structure and identification of the different grasses; their adaptability to different conditions of soil and climate. Examination of commercial seed for viability and purity. The identification of weed seed. The production of grass seed.

Elective; first semester; five credits; one recitation; four laboratory periods.

13. **Farm Management.** A study of the various systems of extensive, intensive, and mixed farming, and the conditions under which each prospers or fails; methods of successful farmers; the application of business methods to farm operations; farm accounts; farm labor; economic management of fields, stock, structures, crops and machines; markets and marketing;

relation of farming to other industries.

Elective; second semester; five credits; five lectures.

14. **Advanced Work.** This course embraces all advanced work of any kind in any branch of Agronomy that the individual student wishes and is fitted to pursue further than is possible in the courses offered above. It is especially designed to meet the needs of graduate students in Agronomy. The subjects which this course offers for advanced study and investigations are:

a. Soils; mechanical analysis, soil surveying, soil fertility problems, soil bacteriology.

b. Crop Production; special crops, field experimentation, plant breeding.

c. Farm Mechanics; farm power machinery, harvesting machinery, rural architecture, concrete work, road and fence construction, drainage, and irrigation engineering.

d. Farm Management; farming systems, irrigation farming, dry land farming, rural economics.

Elective; first or second semester, or both; five credits.

Minor electives in other departments: Agricultural Chemistry, five credits; Animal Husbandry, five credits; Bacteriology, three credits; Botany, three credits; Engineering, three credits; Entomology, three credits; Geology, three credits.

ANIMAL HUSBANDRY.

Professor Withycombe.
Mr. Potter.

The courses offered in this department embrace in a direct practical way the teaching of specific subjects related to breeding, feeding, and general management of live stock. Training is given in judging animals of different classes, and of different breeds and types, for the purpose of giving the student a wider and more intelligent idea of the subjects of selection and the value of judicious breeding in the improvement of his farm stock. Animals of good individual merit are maintained by the

College for this work. These include representatives of five different breeds of cattle, two of sheep, two of hogs, and good specimens of draft horses. All of the College stock is pressed into service in this instruction, and the object lessons thus given stimulate a keener interest in a more discriminative selection and a higher appreciation of the value of animals representing the most approved types.

In this department the scope of instruction includes a wide range of subjects. The laws of breeding are studied in elementary and advanced courses, including heredity, atavism, variation, and allied subjects, together with methods of in-and-in breeding, cross-breeding, and line-breeding. Correlated subjects, such as origin, characteristics, and environment under which the different classes of horses, cattle, sheep, and swine, were developed, are studied. The student is familiarized with the economic side of live stock production, including the study of the processes of digestion, nutrition, metabolism, feeding standards; the composition, digestibility and influence of the various feed stuffs for work, growth, gain, milk and for the maintenance of the health of all classes of farm live stock. Subjects relating to the care and general management of farm animals in health and disease will constitute a portion of the work. This will include elementary and advanced instruction in hygiene, care, medical treatment, and nursing of sick stock.

Stock judging, both elementary and advanced, is made a feature of the work. The student first learns to correctly analyze the animal by means of the score card, which prepares him to take up group judging or judging by comparison. Thus he becomes familiar with type and quality, and is thoroughly competent to judge all classes of farm live stock.

The following courses are offered:

1. **Breeds of Farm Animals.** This includes the study of the breed characteristics of each class of farm live stock, embracing the study of the dominant features of each breed for either work, meat, wool or milk production.

Required in the Elementary course in Agriculture; first year; first semester; two credits; two recitations.

2. **Veterinary Science.** A popular study of the common diseases of farm stock, including care, treatment, methods of surgery, and other subjects of practical value to the farmer.

Required in the Elementary course in Agriculture; second year; first semester; one credit; one lecture.

3. **Care of Farm Animals,** consists of instruction in the general care of live stock on the farm, including stabling, feeding, grooming, and ventilation. An opportunity will be offered to observe the practical feeding and management of dairy cows, beef cattle, sheep, swine, and horses. The purpose of this course is to enable the student to become thoroughly familiar with practical live stock management, and thus develop into an efficient stockman.

Required in the Elementary course in Agriculture; second year; second semester; two credits; two recitations.

4. **Breeds of Stock.** The study of the history of the different classes of farm animals, their origin, and characteristics. In this course each breed is taken up separately and studied from its earliest history. The early environments, formative processes, and men who were prominent in establishing the breed, are reviewed. In fact, every item of interest relating to each breed of live stock from its earliest formative period to the present, is thoroughly discussed by means of text-books, lectures, charts, and demonstrations.

Freshman year; second semester; two credits; two recitations.

5. **Stock Judging.** (a) Score Card Practice. By means of charts in the class room the student is made familiar with the different points of animal form preparatory to the use of the score card system for judging farm animals. Practical work with this system is given in the judging of horses, cattle, sheep, and swine. (b). Judging by Comparison. This consists of judging by comparison between individuals. The work is designed as a preparation for group judging similar to county and state fair work.

Sophomore year; second semester; three credits; one lecture; two laboratory periods.

Prerequisite: Animal Husbandry, 4.

6. **Market Types.** The history, development, and characteristics of the breeds suitable for beef and mutton production. This will include exhaustive practice in judging.

Junior year; first semester; three credits; two lectures; one laboratory period.

7. **Market Types.** This course includes the judging of different types of dairy cattle; light and heavy horses; and swine for bacon and fat.

Junior year; second semester; three credits; one lecture; two laboratory periods.

8. **Herd Management, Range and Farm.** A study of best methods of handling large range and farm herds economically, including feeding, breeding, branding, marketing.

Junior year; second semester; two credits; two lectures.

9. **Principles of Breeding.** This course embraces a study of principles of breeding, including selection, heredity, atavism, variation, fecundity, with the presentation of methods of breeding, in-and-in breeding, cross breeding, and like topics.

Senior year; first semester; four credits; four lectures and recitations.

10. **Stock Feeding.** This embraces the principles of feeding for meat and milk production, including a study of assimilation and metabolism. Feeding stuffs: their composition, their comparative values considered chemically and physiologically. A study of feeding standards. Lectures, assigned readings and recitations.

Senior year; first semester; five credits; five lectures, and recitations.

Prerequisite: Chemistry, 7.

11. **Beef Production.** A study of the various problems relative to fattening cattle at various ages, and the advisability of long and short feeding periods.

Senior year; second semester; one credit; one lecture.

12. **Pork Production.** A systematic study of the economical methods of feeding swine with the ordinary feeds grown on the farm.

Senior year; second semester; one credit; one lecture.

13. **Milk Production.** A study of the economic value of different rations prepared from feeding stuffs grown on the farm, and the value of various concentrated foods as supplementaries for economical milk production.

Senior year; second semester; one credit; one lecture.

14. **Mutton and Wool Production.** A practical study of methods for handling the flock for best results in mutton, lamb and wool production.

Senior year; second semester; one credit; one lecture.

15. **Research Work.** This course will include a study of the experimental work in feeding farm animals that has been conducted by the various agricultural experiment stations of the world. Objects, methods, results, and sources of error will be critically studied. Lectures, recitations, and assigned references (principally from the Experiment Station Record).

Senior year; second semester; three credits; three lectures and recitations.

DAIRY HUSBANDRY.

Professor Kent.
Mr. Simpson.

It is the purpose of the Department of Dairy Husbandry to effect an improvement in the dairy industry, for which a large part of the state is so well fitted. More cows and better ones, as well as more and better dairy products, is the ultimate aim of the instruction and the experimentation carried on by this department.

In order to meet the needs of the industry and the demand for information, the department offers the following courses:

The four-year course, designed to qualify students for agricultural college and experiment station work, for inspectors of dairy products and dairy establishments in city, state, or government service, or as managers of creameries or large dairy farms;

The ten-week course, designed to fit students to become operators of creameries, cheese factories, and dairy farms;

The two-week course, for the purpose of getting together experienced factory men for the interchange of ideas for mutual benefit, and the demonstration of new methods and apparatus.

Besides these three courses, dairy instruction will form a portion of the work offered to students in the Elementary course in Agriculture, also to students in Domestic Science and Art.

The laboratories for the technical work in dairying are located on the first floor of the Agricultural Hall, and comprise a main work-room for butter and cheese making, a milk testing laboratory, boiler and engine room, cheese-curing and -storage rooms, class room and office. A large variety of cream separators gives the student an opportunity to judge of the respective merits of the leading machines of this class now on the market. Churns, pasteurizer, testers, and other apparatus, all in practical operation, are at hand for purposes of instruction.

The dairy wing of the new college barn has accommodations for thirty cows, being equipped with the Drown iron stall, cement floors and mangers, and drainage to permit of thorough and rapid cleaning with water when desirable. There are also boiler, storage and separating rooms, comprising an aggregate floor space 16x33 feet. Two types of milking machines will be in regular use.

The dairy herd, which is used for experimental and demonstration purposes, consists of typical representative animals of the leading dairy breeds, including the Jersey, Guernsey, Holstein, Ayrshire, and the milking type of Shorthorn.

One of the largest commercial creameries in the state is located at Corvallis, an opportunity thus being presented for the study of manufacturing problems as they exist under every day creamery conditions.

The following courses are offered:

1. **Farm Dairying.** A general study of the secretion, composition, and adulteration of milk; methods of separation, determination of fat, ripening of cream, churning and preparing butter for the market. Required in the Elementary course in

Agriculture; first year; second semester; two credits; one recitation; one laboratory period.

2. **Farm Dairying.** Additional work along lines indicated in Course 1; farm cheese making; operation of milking machines, and other dairy machinery; herd records.

Required in the Elementary course in Agriculture; second year; first semester; two credits; one recitation; one laboratory period.

3. **Milk and Cream Testing.** A study of the Babcock test as applied to milk and cream, and other milk products; the use of Farrington's and Mann's acidity tests; fermentation tests; use of the lactometer; composite sampling and testing.

Required in all the courses in Agriculture; sophomore year; first semester; two credits; one recitation; one laboratory period.

4. **Advanced Butter Making.** A study of the physical and chemical properties, composition and separation of milk; effect of different degrees of acidity of the cream upon the resulting butter; the principles of churning; packing and marketing butter; and the operation of churns and separators.

Required in the course in Dairy Husbandry; junior year; first semester; five credits; three recitations; two laboratory periods.

Prerequisites: Course 3; Chemistry 8.

5. **Cheese Making.** A study of the importance of the quality and composition of milk in the manufacture of cheddar cheese; the principles involved in setting, cutting, heating, milking, etc.; special shapes and sizes; the construction and ventilation of curing rooms.

Required in the course in Dairy Husbandry; junior year; second semester; three credits; two recitations; one laboratory period.

Prerequisites: Course 3; Chemistry 8.

6. **Research Work.** A study of various authorities on dairying, together with the work of Experiment Stations along the same line. Some original investigation will also be included in this course.

Required in the course in Dairy Husbandry; senior year; first semester; two credits.

Prerequisites: Courses 3, 4; Chemistry 8.

7. **Factory Management.** Consists of the location, organization, construction, drainage, and ventilation of creameries and cheese factories; creamery refrigeration, and general management. The object of this course is to fit the student to superintend or manage large factories or other dairy establishments.

Required in the course in Dairy Husbandry; senior year; three credits; recitations, and inspection of dairy establishments.

Prerequisites: Same as for Course 6.

8. **Technology of Milk.** A study of the utilization of milk and its products, such as the preparation of condensed, certified, modified, and hygienic milk, milk sugar, casein; and the food value of milk and its products.

Required in the course in Dairy Husbandry; senior year; second semester; two credits; two recitations.

Prerequisites: Courses 3, 4; Chemistry 8.

9. **Preparation of Ice Cream and Ices.** A study of the preparation of ice cream, sherbets, and ices, made on a private or commercial scale.

Required in the course in Dairy Husbandry; senior year; one credit; lectures and laboratory.

Prerequisite: Course 3.

10. **Thesis.** Original work on some Dairy subject. May be worked out in co-operation with the department of chemistry, bacteriology, or animal husbandry. Students should consult the head of the Dairy Department concerning Thesis subject not later than the beginning of their senior year.

Required in the course in Dairy Husbandry; senior year; second semester; two credits.

11. **Home Dairying.** A study of the secretion, composition, and characteristics of milk; methods of separation; care of milk and cream; preparation of ice cream and ices.

Elective in the course in Domestic Science and Art; second semester; three credits; recitation; lectures, and laboratory.

Dairy Husbandry students will be required to take laboratory work in Agricultural Chemistry, second semester, junior year, said subject being allowed on credits for major study. It is recommended that such students carry this subject throughout the junior year.

SHORT COURSES IN DAIRYING.

As previously indicated, two short courses in Dairying are offered, one of ten weeks duration for men of little dairy experience, and one of two weeks duration for experienced factory men.

Students passing the work required in the ten-week course will receive a Dairy Certificate after one season's subsequent employment in a creamery or cheese factory, provided their monthly reports to the Dairy Department are made as required, and that the condition of the factory, upon personal inspection by a representative of the department, is found in a satisfactory condition.

HORTICULTURE.

Professor Lewis.
Professor Coote.
Mr. Cole.
Mr. Peck.
Mr. Bouquet.
Mr. Allen.
Mr. Vincent.

The scope of the work in Horticulture is very broad, giving instruction in Pomology, Olericulture, Floriculture, Landscape Gardening, and School Gardening. In these courses the student is first thoroughly grounded in the fundamentals and is then allowed to specialize as he may desire. Thus, he may fit himself for station or Government work, or enter the many lines in business open to him, such as fruit growing, truck gardening, floriculture, or landscape gardening, for in all these lines there are splendid opportunities throughout the Pacific Northwest. At the present time there are openings for young men to become managers of orchards or to develop fruit lands for outside investors; those having a taste for teaching can find a broad field in college or rural work or as supervisors of horticulture. The required work for students electing horticulture covers a wide range, giving the student a thorough training not only in plant propagation and the general principles of orchard management and vegetable growing, but in floriculture and landscape gardening as well, thus broadening his views and interesting him in the aesthetic and all that pertains to more beautiful surroundings.

The courses consist of lectures, reference readings, field exercises, and laboratory work. Much stress is placed upon the practical phases of all the work. In all courses horticultural truths are illustrated by practice whenever possible. Students are given field and laboratory exercises in all such phases as planting, seeding, budding, grafting, cultivating, thinning, pruning, harvesting, and packing.

Well equipped laboratories and class rooms, orchards containing many varieties of fruit, vegetable gardens, a large campus well supplied with ornamentals, forcing-houses, and a good reference library, are some of the features enabling the department to offer thorough courses.

The following courses are offered:

1. **Elementary Orchard Practice.** A course dealing with the first principles of fruit growing, in which the practical phases are emphasized, stress being laid on such phases of orcharding as harvesting, packing, pruning, spraying, establishing of orchards, and the essentials of small fruit culture.

Required in the Elementary course in Agriculture; first year; first semester; two credits; one recitation; one laboratory period.

2. **Elementary Plant Propagation and Vegetable Gardening.** In this course the requirements of the elementary student are kept in mind, the work leading up to more advanced courses in the freshman and sophomore years. The propagation of the common plants used in horticulture is studied; and practical laboratory exercises are given in the planting of seed, making of cuttings, and the ordinary methods of budding and grafting. The last part of the semester is devoted to a study of the first principles of vegetable gardening.

Required in the Elementary course in Agriculture; first year; second semester; two credits; one laboratory period.

3. **Plant Propagation,** consists of a very thorough study of the propagation of plants used in horticulture, including a study of soils used in nursery and seed bed; seeding and transplanting; the multiplying of plants by separation and division; soft and hard wood cuttings; layering; and the many forms of budding and grafting. The greenhouses, laboratories, orchards, and campus offer splendid opportunities and furnish abundant material, for practical work.

Required in the course in Agriculture; freshman year; second semester; two credits; one recitation; one laboratory period.

4. **Orchard and Garden Practice.** Problems concerning the home orchard and garden are dealt with in this course, the aim being to give those students who cannot further pursue a horticultural course the necessary training to develop ideal home orchards and gardens; at the same time the work is fundamental for students desiring to pursue horticultural studies further. The common orchard and garden problems, such as selecting a site; setting and cultivating the orchard; pruning; spraying; and choosing varieties, are considered.

Required in the course in Agriculture; sophomore year; first semester; three credits; two recitations; one laboratory period.

5. **Practical Pomology.** Especially offered for those students desiring training in commercial orcharding; deals largely with advanced problems connected with the growing and handling of our leading fruits. The laboratory training is made a strong feature of this course, every student being required to become proficient in fruit packing to the extent that he can put up a first-class box of fruit. The problems of pruning, thinning, cultivation of soil, use of cover crops, and irrigation, are thoroughly studied. Instruction is by lectures dealing with Pacific Coast conditions. Practical exercises are conducted in orchard, packing house, and laboratory.

Elective in the course in Agriculture; junior year; first semester; three credits; two recitations; one laboratory period.

6 and 7. **Orchard Practice.** A Saturday morning course, dealing only with the practical phases of orchard management. The various orchard problems, such as harvesting, packing, pruning, and the handling of small fruits, are taken up according to season. This is a course of great value to students who are to take up practical orcharding as a life work. In addition to work in the college orchards, students will be allowed to undertake outside work for remuneration, under departmental supervision.

Elective in the course in Agriculture; junior year; both semesters; two credits; two laboratory periods.

8. **Floriculture.** An elementary course in the cultivation of greenhouse and home plants and of the common annuals and perennials used in outdoor work. The course is designed to broaden the views of those students who are unable to take advanced courses in floriculture, and to make them more useful citizens.

Required of Agricultural juniors electing Horticulture as a major; first semester; two credits; one recitation; one laboratory period.

9. **Grape Growing.** A special course in Viticulture, devoted to the best methods of growing, harvesting, and packing the American and European types of grapes. Such phases as exposure, elevation, soils, use of resistant stock, pruning, harvesting, packing, shipping, and storing are included. The manufacture of by-products will also be treated.

Elective in the course in Agriculture; junior year; first semester; two credits; two recitations.

10. **Small Fruit Culture.** In this course a study is made of the problems concerned with the growing and marketing of such fruits as the strawberry, currant, gooseberry, raspberry, blackberry, Loganberry and cranberry. A large collection of small fruits in the college orchard aids materially in the study.

Elective in the course in Agriculture; junior year; second semester; three credits; three recitations.

11. **Nut Culture.** Nut culture is becoming a very important branch of Horticulture. In this course a special study will be made of the culture of such nuts as the walnut, filbert, almond,

pecan and the peanut. Instruction is very largely by lectures on the special adaptability of the Pacific Coast to nut culture. Laboratory periods will be given on the most successful methods of grafting nuts.

Elective in the course in Agriculture; junior year; second semester; two credits; two recitations.

12. **Landscape Gardening.** All students should be interested in everything that pertains to the decoration of the home, the improvement of school grounds, the beautifying of streets, and the establishment of recreation grounds and parks. In this course the general principles of landscape are so treated as to apply to the upbuilding of the aesthetic in everyday life.

Required of Agricultural juniors electing Horticulture as a major; second semester; two credits; one recitation; one laboratory period.

13. **Systematic Pomology.** The description, nomenclature, and classification of native and sub-tropical fruits and nuts is studied. In addition, training is given in judging and displaying fruits. Types of fruits which have been collected from various parts of the state and from other states will be studied.

Elective in the course in Agriculture; senior year; first semester; two credits; one recitation; one laboratory period.

14. **Commercial Pomology.** This course deals with the problems of marketing fruits, methods of packing, transportation, and storage; the building of packing and storage houses. A study of associations as a factor in the handling of fruit, of market requirements, and of the handling of by-products, makes this course decidedly valuable.

Elective in the course in Agriculture; senior year; first semester; two credits; two recitations.

15 and 16. **Seminar.** This is a course especially arranged for senior and graduate students in Horticulture. A study is made of some of the advanced problems. Articles from the leading magazines on horticultural subjects, also station and government publications, are reviewed. A course of lectures and class drill is given in outlining and conducting experiments and investigations.

Required of Agricultural seniors and advanced students having their major in Horticulture; both semesters; one credit.

17. **History and Literature of Horticulture.** A study is made of the literature and history of horticulture from the time of the Egyptians up to modern times.

Elective in the course in Agriculture; senior year; first semester; two credits; two recitations.

18. **Plant Breeding.** This course embraces a study of the theories of evolution as related to plant breeding, and their application to the practical aspects of the work, such as cultivation, selection, acclimatization, hybridizing, and pollination. Lectures, reference reading, and practical problems given in laboratory and field.

Elective in the course in Agriculture; senior year; second semester; four credits; three recitations; one laboratory period.

19. **Sub-tropical Pomology.** A study of the culture of such sub-tropical fruits as oranges, figs, and olives.

Elective in the course in Agriculture; senior year; second semester; two credits; two recitations.

20. **Principles of Vegetable Gardening.** In this course a study is made of the history and the botanical relationship of vegetables, as well as the best methods of growing them, including such phases as location, soils, cultivation and forcing of our common vegetables. Lectures and exercises in field and laboratory are conducted.

Elective in the course in Agriculture; junior year; first semester; four credits; three recitations; one laboratory period.

21. **Greenhouse Construction.** A course especially adapted for students specializing in floriculture and truck gardening. The problems connected with the building of greenhouses, hotbeds, and cold frames, are dealt with; also, selection of materials; the various systems of heating and ventilating, and the value of the various types of buildings. Lectures and laboratory exercises in greenhouse and drafting room are conducted.

Elective in the course in Agriculture; junior year; second semester; three credits; one recitation; two laboratory periods.

22. **Forcing Vegetables.** A course dealing with the problems connected with the forcing of such vegetables as lettuce, cucumbers, tomatoes, rhubarb, and melons, in cold frames, hotbeds, and greenhouses. Lectures and exercises in the greenhouses.

Elective in the course in Agriculture; senior year; first semester; four credits; two recitations; two laboratory periods.

23. **Systematic Olericulture.** Description, nomenclature, and classification of vegetables. Exercises are given in displaying and judging vegetables.

Elective in the course in Agriculture; senior year; first semester; one credit; one laboratory period.

24. **Truck Gardening.** Only the purely commercial aspects of vegetable gardening are offered in this course. Such phases as capital, labor, rotation, tools, harvesting, marketing, and others that are involved in the growing of vegetables on an extensive scale for market or canning purposes.

Elective in the course in Agriculture; senior year; second semester; five credits; four recitations; one laboratory period.

25. **Annuals and Perennials.** A study of the culture and value of the hardy annuals and herbaceous perennials, and their use in Floriculture.

Elective in the course in Agriculture; senior year; first semester; three credits; two recitations; one laboratory period.

26. **Forcing Flowers.** In this course are studied the propagation and problems of culture, such as soils, ventilation, and heat, connected with the forcing of plants used in the florist's trade.

Elective in the course in Agriculture; senior year; second semester; four credits; two recitations; two laboratory periods.

27. **Plant Materials** is a course of study covering the use of trees and shrubs in Landscape Gardening.

Elective in the course in Agriculture; senior year; first semester; two credits; one recitation; one laboratory period.

28 and 29. **Theory and Design.** These courses deal with the technical and professional side of landscape gardening as related to the establishment and improvement of private estates, public grounds, parks, and cemeteries. The lectures

given deal with the principles of landscape as applied to actual problems. Field exercises and excursions are conducted for illustrating the work.

Elective in the course in Agriculture; senior year; both semesters; three credits; one recitation; two laboratory periods.

30. **Field Practice in Landscape Gardening.** This course includes the application of the general principles of theory and design to practical problems in the field.

Elective in the course in Agriculture; senior year; second semester; two credits; two laboratory periods.

31. **Floriculture.** Instruction is given in various subjects as, proper soils, planting of seed, transplanting, making of cuttings, cultivation, principles of heating and ventilation, control of insect pests and diseases, connected with the cultivation of the common household and dooryard flowers. In addition, such problems as the grouping and arranging of flowers so as to obtain the best color harmonies and most pleasing effects while growing, as well as for decoration purposes, are included. The lectures are supplemented by reference readings and laboratory periods in greenhouse and garden.

Required in the course in Domestic Science and Art; junior year; first semester; three credits; one recitation; two laboratory periods.

32. **Landscape Gardening.** The general principles of Landscape Gardening are taught, the aim being to give the student sufficient foundation to understand landscape gardening as applied to home decoration, to interest the student in the home beautiful, the improvement of our public school grounds, and city and village streets. A study is made of photographs and famous landscape paintings showing good taste and design in the various phases of landscape gardening. Lectures and reference readings are supplemented by field exercises.

Required in the course in Domestic Science and Art; junior year; second semester; three credits; two recitations; one laboratory period.

33. **Vegetable Gardening and Small Fruit Culture.** In this course such problems as care of soil, seeding, rotation, fertilizing, and the selection of the best varieties of vegetables and

small fruits for use in the home garden are considered. Lectures, laboratory, and field exercises.

Elective in the course in Domestic Science and Art; senior year; second semester; three credits; two recitations; one laboratory period.

POULTRY HUSBANDRY.

Professor Dryden.

In recognition of the importance of the poultry industry, and to meet the demands of young men who aim to give special attention to this industry after leaving college, a department of Poultry Husbandry has been established. Poultry keeping is a part of every well regulated system of diversified farming and at the same time offers opportunities for profit making as a special business. The plant that is being equipped at the College will give exceptional opportunities for a study of the practical as well as the theoretical side of the poultry industry. The instruction will be supplemented by practical work in the judging, feeding, and management of fowls.

1. **Poultry Husbandry.** This course treats of breeds and varieties of poultry, their history and classification; incubation and brooding, natural and artificial; construction of buildings. A critical study of the recent literature of the subject, including bulletins of investigation of poultry problems, will be required.

Elective; second semester; two credits; two recitations.

2. **Poultry Management.** Under this head the feeding and general care of fowls will be discussed, including feeding for egg production and for meat; killing and marketing chickens; practice in feeding, managing and keeping records of a pen of fowls and in operating incubators and brooders. For a limited number wishing to specialize, arrangements will be made to give practical work throughout the year.

Elective; second semester; two credits; one recitation; one laboratory period.

DOMESTIC SCIENCE AND ART.

Professor Greer.
Miss Van Liew.
Miss Ewing.
Miss Tobin.

1. **Principles of Cookery.** This course considers the cooking of all common foods, with a thorough study of the underlying principles involved in the processes of cooking and in the combining of the various foods to give proper nutrition in health at different ages, and under different diseased conditions. Attention will be given to the economical purchase and preservation of foods; methods of preparing foods as attractively as possible; the choice of good materials; the cost for nutritive value; the keeping quality and the season for purchase. The course will aim to train the mind and the hand to work together that the best results may be obtained with speed through intelligent interest. The highest ideals in work will be maintained in order, neatness, judgment, accuracy, energy, skill and good spirit.

First year; both semesters; one credit; one laboratory period: second year; both semesters; three credits; one lecture; two laboratory periods.

2. **Sewing.** This is a general course of instruction and will require of the student sufficient practical work to make her proficient in plain sewing, both hand and machine, and drafting of under-garments, dresses and children's apparel; methods of art needlework will also be taught. Principles of construction and execution will receive careful attention.

First year; both semesters; two credits; two laboratory periods.

3. **Home Economics and House Inspection.** A course in the practical cleaning and care of all parts of a home and all types of house furnishings, with consideration of distribution of work, rotation of activities and means of effective cooperation. The daily necessities of the dormitory will furnish ade-

quate opportunity for the various types of this work, also for inspection, the purpose of which will be to make the student alert in detecting even slight disorder.

First year; both semesters; one-half credit; lectures.

4. **Physiology and Hygiene.** The consideration of function and structure with emphasis upon digestion and the organs of the special senses, hygiene (personal and public), emergencies and home nursing.

First year; both semesters; one-half credit; lectures.

5. **Nature Study.** The chief purpose of this course will be to cultivate a habit of careful observation and thoughtful inference, at the same time to instill a love of nature and a desire to know the names and characteristics of the things among which we live.

First year; both semesters; one credit; one lecture.

6. **Millinery.** A course in the trimming and making of hats for women and children for usual occasions. An effort will be made in both sewing and millinery to have the student meet her current need by her own work and in doing so to consider both the constructive and aesthetic aspects.

Second year; both semesters; one credit; one laboratory period.

Freshman year; both semesters; two credits; two laboratory periods.

7. **Dressmaking and Tailoring.** This course considers at length such phases of the work as originality, beauty and appropriateness in costume, design and excellence in technique.

Second year; both semesters; two credits; two laboratory periods.

8. **Special Cookery,** a course in (a) Elaboration of principles, including the cooking of flour mixtures, meats, vegetables and candy, with special attention to the preparation of palatable salads and desserts; delicacy, attractiveness in appearance, texture and flavor will be emphasized. (b) Practical applications with meals for moderate sized family in house dining-room of the department; for a large number; preparation made in the school kitchen and served to a number chosen in the college dormitory at regular meal time; receptions and teas as social

occasions may offer; "candy pulls"; Christmas boxes. (c) Serving. Serving of meals; table laying; care of china; linen and silver; what to serve and how, for breakfast, luncheon, dinner, receptions and teas; arrangement of dining-room; sufficient practice will be given to enable students to deal with each problem with facility.

Freshman year; both semesters; three credits; three laboratory periods.

9. **Handiwork.** A course in braiding, knotting, netting, knitting, weaving and basketry for the construction of personal and household articles, combining use and beauty.

Freshman year; both semesters; two credits; two laboratory periods.

10. **House Construction.** This course considers the application of art principles to the construction and furnishing of all parts of the house.

Sophomore year; both semesters; one credit; one laboratory period.

11. **Basketry and Weaving.** A course in the construction of beautiful and useful articles, giving opportunity for motor control and original self expression in various materials.

Sophomore year; both semesters; two credits; two laboratory periods.

12. **Laundry Work.** In this course the principles of laundry work are taught through practical application. The subjects considered are: treatment of hard water; choice of starch; blueing and soap; laundering of bed and body linen, dresses, waists, shirts, collars and cuffs, flannels and table linen; removal of stains; cleaning of laces and colored embroideries.

Sophomore year; both semesters; one credit; one laboratory period.

13. **Dietetics.** A course in the study of the value of various food principles; proportion present in common foods; calculation of food value of good menus served; study of various dietaries which have been developed scientifically and empirically, tested by comparison of home and institutional dietaries.

Sophomore year; both semesters; two credits; two laboratory periods.

Additional and extended courses are offered as major or minor electives, in Home Sanitation, Home Gardening, Marketing, Chemistry and Physics, Millinery, Art and Designing, Home Decoration, Dietetics, Handicraft and similar subjects.

CIVIL ENGINEERING.

Professor Skelton.
Mr. Gardner.

1. **Fieldwork.** A course in elementary field operations, including simple measurements and geometrical constructions with the steel tape or chain and range poles. Exercises will be given in the measurement and computation of areas, ranging outlines, passing obstacles, and similar work. Practice will also be given in the use of the simpler instruments.

Elective with shopwork in the course in Civil Engineering; freshman year; first semester; two credits; two laboratory periods.

Prerequisite: Mathematics 4.

2. **Plane Surveying.** This course includes recitations, lectures, field and office work in the theory and practice of plane surveying. The theory and construction of the different surveying instruments are studied and practice will be given in making their tests and adjustments. The United States public land surveys and land laws are studied. Forms of field notes, methods of balancing and plotting surveys, computing areas, and like work, will have due consideration. Proper emphasis will be placed upon chain surveying. Surveys will be made of assigned plats and descriptions prepared. Resurveys will be made where more than ordinary difficulty is encountered in the interpretation of descriptions of existing evidence.

Required in the courses in Civil Engineering, Mining Engineering, and Forestry; freshman year; second semester; five credits; until April 15, four recitations; one laboratory period; after April 15th, five laboratory periods.

Prerequisites: Mathematics 6; Mechanical Engineering 1.

3. **Plane Surveying.** This course is a condensation of Course 2, and is designed for students in the courses in Agriculture and Mechanical or Electrical Engineering. The greater part of the time is spent by the student in the field with the various instruments. Exercises relating to farm surveying, drainage, irrigation, and road construction, occupy most of the ime. Areas are computed, profiles are constructed and estimates formed.

Elective; second semester; three credits; three laboratory periods, in the field or office.

Prerequisite: Mathematics 6.

4. **Engineering Drawing.** A continuation and extension of he previous work in drawing with special reference to applicaion in Civil Engineering. Practice in tracing and in blue and black process printing will be given.

Required in the course in Civil Engineering; sophomore ear; first semester; three credits; three laboratory periods.

Prerequisites: Mechanical Engineering 1, 5; Drawing 3.

5. **Topographic Surveying.** This course will include the xecution of a complete topographic survey of an assigned ract, including base line measurement, transit, stadia and lane table work, platting and finishing the map.

Required in the course in Civil Engineering; sophomore ear; first semester; four credits; five laboratory periods, until he Christmas holidays.

Prerequisites: Civil Engineering 2; Mechanical Engineering ; Drawing 3.

6. **Railroads.** Theory of economic grades, circular and piral curves, turnouts, earthwork computations, and similar opics.

Required in the course in Civil Engineering; sophomore ear; first semester; one credit; five recitations, from the hristmas holidays to the end of the semester.

Prerequisites: Civil Engineering 2, 5.

7. **Railroads.** This course is a continuation of Course 6. reconnaissance and location survey of a line several miles

in length will be made, maps and profiles constructed, and estimates formed.

Required in the course in Civil Engineering; sophomore year; second semester; five credits; two recitations; three laboratory periods.

Prerequisite: Civil Engineering 6.

8. **Highway Construction.** This course includes a consideration of the fundamental principles of location, construction and maintenance of roads, as well as a thorough study of the materials used in road and street building.

Required in the course in Civil Engineering; junior year; first semester; three credits; three recitations.

9. **Masonry and Foundations.** A study of the properties of stone, brick, lime, cement, and concrete, as building materials and of their uses in foundations, retaining walls, piers, and dams; the theory of the mason-arch, retaining wall and dams. Recitations, lectures and work in cement laboratory.

Required in the course in Civil Engineering; junior year; second semester; four credits; three recitations; one laboratory period.

10. **Roofs and Bridges.** Both analytical and graphical methods will be applied to the determination of the stresses in roof trusses under static and wind loads and in simple bridge trusses under static and moving, concentrated and distributed, loads.

Required in the course in Civil Engineering; senior year; first semester; four credits; two recitations; two laboratory periods.

Prerequisites: Mechanical Engineering 5, 6.

11. **Roofs and Bridges.** This course is a continuation of Course 10. Draw-bridges, cantilever and suspension bridges, and reinforced concrete arch.

Required in the course in Civil Engineering; senior year; second semester; four credits; two recitations; two laboratory periods.

12. **Sanitary Engineering.** Drainage systems for populous districts, including chemical and bacterial purification of sewage; collection and disposal of garbage; street cleaning; separate and combined water carriage system; surveys, plans and

specifications; law of flow and determination of size and capacity; brick, terra cotta, cement, and concrete sewers.

Required in the course in Civil Engineering; senior year; first semester; three credits; two recitations; one laboratory period.

Prerequisite: Mechanical Engineering 7.

13. **Water Supply Engineering.** Water supply for populous districts; gravity and pumping systems; pumping machinery, stand-pipes, reservoirs and purification works; the preparation of plans, specifications and contracts.

Required in the course in Civil Engineering; senior year; first semester; three credits; two recitations; one laboratory period, designing and computing room.

Prerequisite: Mechanical Engineering 7.

14. **Irrigation Engineering.** Precipitation, run-off, and stream-flow; quantity of water required; measurement of flow in open channels; distribution systems, headworks and storage reservoirs, and other like topics. Study of a typical project including the preparation of plans and specifications.

Required in the course in Civil Engineering; senior year; second semester; four credits; three recitations; one laboratory period.

15. **Contracts and Specifications.** A study of the general principles and laws of contracts as applied to engineering, including the preparation and study of specifications and contracts based upon engineering structures designed by the individual student.

Required in the course in Civil Engineering; senior year; second semester; one credit; one hour recitation or lecture.

16. **Engineering Seminar.** The members of the junior and senior classes in the course in Civil Engineering, and the professor and instructors, constitute the Civil Engineering Seminar which meets once a week. The purpose of this seminar is to bring the student in touch with engineering literature and practice. To this end a number of journal reviews and papers on engineering subjects will be presented and freely criticised each week. The work will follow a previously arranged program.

Required in the course in Civil Engineering; junior year; first semester; one credit.

17. **Engineering Seminar.** See Course 16.

Required in the course in Civil Engineering; junior year; second semester; one credit.

18. **Engineering Seminar.** See Course 16.

Required in the course in Civil Engineering; senior year; first semester; one credit.

19. **Engineering Seminar.** See Course 16.

Required in the course in Civil Engineering; senior year; second semester; one credit.

ELECTRICAL ENGINEERING.

Professor Gardner.
Mr. Hawley.

1. **Dynamo-Electric Machinery.** In this course the student becomes familiar with the fundamental laws of electric and magnetic circuits; the structure of generators and motors; the types suited to modern requirements; methods of testing. According to given conditions complete preliminary designs of generators are required, which are used in the drafting room later. These reports consist of sketches with dimensions of parts; types o windings; estimated resistances, losses and efficiencies.

Junior year; first semester; three credits; three recitations

Prerequisites: Physics 3, 4.

2. **Alternating Currents.** In this course alternating currents are considered both from a mathematical and graphical standpoint. It includes the measurement of power; study of the action of resistance, inductance and capacity in series and parallel circuits; effect of variation of frequency and wave form the general theory of alternators, transformers, induction motors, converters and their construction.

Junior year; second semester; three credits; three recitations

Prerequisites: E. E. 1; Mathematics 11, 12.

3. **Advanced Alternating Currents.** The action and operation of alternating current generators; motors of synchronous and induction types, and transmission lines are considered mathematically; the Steinmentz symbolic method of solution of problems being used.

Senior year; first semester; three credits; three recitations.

Prerequisite: E. E. 2.

4. **Electrical and Magnetic Measurements.** Galvanometers, post-office resistance boxes, shunts, condensers, ammeters, and voltmeters are used for the solution of engineering problems. Insulation resistances, and location of faults in lines and cables are determined. Instruments calibrated; watt-hour meters tested.

Junior year; first semester; two credits; two laboratory periods.

Prerequisites: Physics 3, 4.

5. **Dynamo Laboratory.** Construction of direct current dynamos and motors and their operation; the applications of ammeters, voltmeters, and watt meters to the measurement of power are made familiar to the student. Field and armature resistances, and characteristic curves are obtained. Commercial tests are made.

Junior year; second semester; two credits; two laboratory periods.

Prerequisites: Physics 3, 4.

6. **Electrical Engineering Laboratory.** Study of alternating current circuits. instruments and machines. Use of photometers in the measurement of candle power of arc and incandescent lamps.

Senior year; first semester; two credits; two laboratory periods.

Prerequisite: E. E. 5.

7. **Electrical Engineering Laboratory.** Advanced direct and alternating current testing, including that of single and polyphase alternators; synchronous and induction motors; transformers; synchronizing, and transmission line operation.

Senior year; second semester; two credits; two laboratory periods.

Prerequisite: E. E. 6.

8. **Electrical Distribution.** The different types of electric circuits and systems of wiring are considered from an economic standpoint; aerial and underground construction; house wiring, and best forms of illumination, are studied.

Senior year; first semester; two credits; two lectures or recitations.

Prerequisites: E. E. 2, 5.

9. **Electrical Design.** Dynamos, transformers, alternators, rotary converters are designed; the preliminary reports in E. E. 1 and 2 being used; complete sets of working drawings are made.

Senior year; first semester; three credits; three laboratory periods.

Prerequisites: E. E. 1, 2.

10. **Power Plants.** Principles governing the location of power plants, both steam and hydraulic; the economics of transmission; selection and installation of generating units; railway construction, and rolling stock; management and testing of complete plants, are considered. Time is devoted to the study of estimates, specifications, and superintendence.

Senior year; second semester; three credits; three lectures or recitations.

11. **Power Plant Design.** Consists in making drawings, specifications and estimates for a complete plant, including design for a switchboard and distribution system.

Senior year; second semester; three credits; three laboratory periods.

12, 13. **Seminar.** Weekly meetings are held for the discussion of articles appearing in current periodicals and scientific papers.

Senior year; first and second semesters; one credit.

14. **Electro-Chemistry.** Electric heating and electrolytic processes for the manufacture of chemicals and metals are discussed. Different types of electric furnaces and storage batteries are considered.

Elective; senior year; second semester; two credits; two laboratory periods.

15. **Telephony.** The underlying principles of the transmission of intelligence by electrical means, and the methods of operation of the telegraph, telephone, wireless telegraph, wireless telephone, and their relative values commercially are studied.

Elective; senior year; two credits; two laboratory periods.

16. **Thesis.** Most of the preliminary reading and planning is done during the first semester, while the actual investigation or construction work occurs in the second semester.

Senior year; first semester; one credit; second semester; two credits.

MECHANICAL ENGINEERING.

Professor Covell.
Assistant Professor Phillips.
Mr. Jackson.
Mr. Porter.
Mr. Knopf.
Mr. Graf.

1. **Mechanical Drawing.** The elementary principles of mechanical drawing are taught by sketching and drawing to scale, parts of machines. Particular attention is given to lettering, general neatness, and accuracy.

Required in the courses in Civil, Electrical, Mining and Mechanical Engineering; freshman year; first semester; three credits; three laboratory periods.

2. **Descriptive Geometry.** This work consists in the graphical solution of problems involving the projection of lines, surfaces and solids.

Required in all courses in Engineering; freshman year; second semester; three credits; one recitation and two laboratory periods.

Prerequisite: Mechanical Drawing 1.

3. **Mechanical Drawing.** This course is a continuation of the work in Course 1, and includes the preparation of working drawings, tracings and blue prints.

Required in the courses in Electrical, and Mechanical Engineering; sophomore year; first semester; four credits; four laboratory periods.

Prerequisite: Course 2.

4. **Mechanism.** A study of mechanical movements, including velocity ratios; transmission of motion by linkwork, gearing, cams and belting.

Required in the courses in Electrical, and Mechanical Engineering; sophomore year; second semester; four credits; two recitations; two laboratory periods.

Prerequisite: Course 2.

5. **Statics and Dynamics.** This course treats of the action of forces upon bodies at rest or in motion. Many original problems are worked and the practical applications pointed out.

Required in all courses in Engineering; junior year; first semester; four credits; four recitations or lectures.

Prerequisites: Mathematics 11, 12.

6. **Strength of Materials.** A study of the strength of materials with special reference to their use in such engineering structures as beams, trusses, girders, and shafting.

Required in all courses in Engineering; junior year; second semester; two credits; four recitations or lectures during the first half of the semester.

Prerequisite: Course 5.

7. **Hydraulics.** This course deals with theoretical hydraulics, including statical pressure, immersion, flotation, and steady flow through pipes and orifices, as well as over weirs and in open channels. Bernoulli's theorem is taken as the basis for calculation of flow in pipes and through orifices, with such modifications as are required to allow for frictional and other resistances.

Required in all courses in Engineering; junior year; second semester; two credits; four lectures or recitations during the second half of the semester.

Prerequisite: Course 5.

8. **Materials of Engineering.** This is largely a lecture course dealing with the materials used in engineering structures. Iron, steel, brick, cement, timber and stone are discussed with reference to their physical properties and adaptability to the purposes of engineering construction.

Required in the courses in Civil, and Mechanical Engineering; junior year; first semester; two credits; two recitations.

Prerequisites: Physics 3, 4.

9. **Enginery.** It is the purpose of this course to teach the care, management and operation of steam engines, steam boilers, gas and gasolene engines in as practical a manner as possible. A large part of the work consists in handling engines and boilers while the principles are discussed in the class room.

Required in the course in Forestry; junior year; second semester; two credits; two laboratory periods or an equivalent.

10. **Steam Machinery.** This course treats of steam boilers, feed water heaters, injectors, mechanical stokers, steam engines, governors, valve gears, indicators and indicator diagrams. The purpose is to make the student familiar with the forms of these devices, which are of prime importance in a power plant, and to solve problems concerning their installation and use.

Required in the courses in Electrical, and Mechanical Engineering; junior year; second semester; two credits; two recitations or an equivalent.

Prerequisites: Physics 3, 4.

11. **Engineering Laboratory.** The calibration of instruments is first taken up, after which tests are made to determine friction. efficiency of machines, value of lubricating oils, and calorimeter tests of fuels.

Required in all courses in Engineering; junior year; first semester; two credits; two laboratory periods.

Prerequisites: Physics 3, 4.

12. **Engineering Laboratory.** This is a continuation of the previous course and includes testing of the materials of engineering such as iron, steel, timber, brick, stone and cement to determine their strength under various conditions. Also calorimeter tests of steam, and evaporative tests of steam boilers.

Required in all courses in Engineering; junior year; second semester; two credits; two laboratory periods.

Prerequisite: Course 11.

13. **Machine Design.** This course is elementary and consists largely in applying the principles discussed in mechanism and in mechanics to the design of machine parts; riveted joints, fastenings, belting, and shafting.

Required in the course in Mechanical Engineering; senior year; first semester; four credits; two recitations; two laboratory periods.

Prerequisites: Courses 4, 6.

14. **Machine Design.** A continuation of Course 13, devoted to the design of complete machines, steam engines, machine tools, pumping machinery and their installation.

Required in the course in Mechanical Engineering; senior year; second semester; four credits; four laboratory periods.

Prerequisite: Course 13.

15. **Thermodynamics.** This course treats of the laws governing the transformation of heat into work, particularly in the steam engine. The general laws of thermodynamics are discussed and a number of practical problems are solved.

Required in the courses in Electrical and Mechanical Engineering; senior year; first semester; three credits; three recitations or lectures.

Prerequisites: Mathematics 11, 12; Physics 3, 4.

16. **Internal Combustion Motors.** In this course the application of thermodynamics to gas and oil engines is studied with reference to economy of operation and the results are compared with those obtained from the steam engine. The properties and cost of fuels are discussed as well as the methods of carburation and ignition.

Required in the course in Mechanical Engineering; senior year; second semester; two credits; two recitations or lectures.

Prerequisite: Course 15.

17. **Steam Turbines.** The steam turbine has taken its place as one of the important factors in transforming energy into work. Hence, the principles involved in its construction and operation should be well understood by engineering students.

This course considers flow of steam through pipes and nozzles and its action on turbine buckets. The effects of superheating are noted and some attention is given to steam turbine design.

Required in the course in Mechanical Engineering; senior year; second semester; two credits; two recitations or lectures.

Prerequisite: Course 15.

18. **Hydraulic Motors.** The application of the principles of theoretical hydraulics and mechanics to the development of power by means of water wheels, is discussed. The different types of turbines and impulse wheels are considered with reference to their forms and adaptability.

Required in the course in Mechanical Engineering; senior year; first semester; two credits; two recitations or lectures.

Prerequisite: Course 7.

19. **Woodwork.** This course is designed for engineering students, and consists of a series of constructive exercises in carpentry, joinery, and wood turning, accompanied by one lecture a week. The first constructive exercises are designed to teach the use of the various hand tools as well as the forms of joints in bridge and house framing, dictated by good engineering practice. The accompanying lectures deal with the care and use of bench tools, the use of the carpenter's square in framing and laying out work, the principles of joinery, board and timber measure, the selection of materials. During the latter part of the semester, wood turning is taken in conjunction with lectures on the lathe, its care and management, and the care and use of the turning tools. This instruction precedes patternmaking.

Required in all courses in Engineering; freshman year; first semester; three credits; three laboratory periods.

20. **Woodwork Patternmaking.** The students in Engineering will take up the art of patternmaking where they left off at the close of the first semester, beginning with simple exercises and advancing until they have made patterns for various parts of machines and other structures, such as engine cylinders, gear wheels, pulleys, dynamo frames and special patterns as assigned. The lectures explain the principles of moulding directly related to patternmaking; the shrinkage of metals,

warping and twisting of woods, glue and other fastenings; the making of cores and core boxes; methods of marking and storing patterns; and how to estimate the weight of iron castings.

Required in the courses in Electrical and Mechanical Engineering; freshman year; second semester; three credits; three laboratory periods.

Prerequisite: Course 19.

21. **Woodwork.** A course following the same general plan as Course 19, but designed more especially for students in Agriculture. The exercises lead up to the framing of farm buildings, the construction of gates, bridging of small streams and similar work.

Required in the courses in Agriculture and Forestry; freshman year; first semester; two credits; two laboratory periods.

22 and 23. **Woodwork,** Mechanic Arts Course. This course in woodwork will be divided into three parts carried on simultaneously.

a. A lecture course on methods and materials used in Mechanic Arts, including bench equipment, use and care of bench tools; carpentry and laying out work; joinery or putting work together; fastenings, structure and defects of wood; methods of cutting and seasoning; furniture construction and design; wood finishing, painting, staining, varnishing, waxing and polishing. This will require one hour a week.

b. One hour a week will be devoted to mechanical drawing and a study of drawings to enable the student to make drawings of the articles which he is called upon to make in the shop and to interpret drawings in general.

c. A woodwork course including joinery, primary construction work, furniture construction and finishing. The purpose of this course is to instill a knowledge of the principles of joinery by teaching the use and care of woodworking tools, to develop skill in their use by means of progressive exercises. The application of the joints are shown in the construction of finished products. All of the operations must be methodically and accurately performed, and the finished product have a neat and workmanlike appearance.

Required in the course in Mechanic Arts; first year; both semesters; five credits; one lecture; four laboratory periods.

24 and 25. **Woodwork.** Mechanic Arts course. Those who desire to specialize in woodwork may do so by devoting the whole time allotted to industrial work, to this branch. Such students will continue along the same lines as indicated in Courses 22 and 23, and during the second year will enter upon high grade cabinet work.

Required in the course in Mechanic Arts; second year; both semesters; five credits; five laboratory periods.

26 and 27. **Patternmaking.** Mechanic Arts course. Those who prefer patternmaking to cabinet work may devote the second year to that subject, following the plan outlined under Courses 24 and 25.

Required in the course in Mechanic Arts; second year; both semesters; five credits; five laboratory periods.

28. **Blacksmithing.** The student is taught to make and manage the forge fire; to shape iron by bending, upsetting, drawing, and welding. Many useful articles are made, consisting of hooks, staples, rings, clevices, and chains.

Required in the courses in Engineering and Agriculture; sophomore year; first semester; three credits; three laboratory periods.

Prerequisite: Woodwork.

29. **Blacksmithing.** This is a continuation of Course 28, and is devoted to more advanced work, consisting largely of work in steel. The principles of hardening and tempering are taught and applied in making hammers, chisels, drills, cutting tools for the shop, and in doing special work as assigned.

Required in the courses in Engineering; sophomore year; second semester; three credits; three laboratory periods.

30 and 31. **Blacksmithing.** These courses are very similar to Courses 28 and 29, and cover the same work. It begins at first principles, and by means of a carefully planned series of exercises, teaches the student the general method of doing work. Since more time is allowed in this course than in Courses 28 and 29, the student has further opportunity to specialize along approved lines of work.

Required in the course in Mechanic Arts; second year; throughout the year; five credits; five laboratory periods.

32. **Blacksmithing.** A course for students in Agriculture. After completing the first exercises, the student enters upon work having a direct application to farming, such as the mending of farm implements, making and mending of chains, clevices, and hooks; ironing of whiffletrees, and neckyokes; sharpening of tools.

Required in the courses in Agriculture and Forestry; freshman year; second semester; two credits; two laboratory periods.

33 and 34. **Steam-fitting and Plumbing.** These courses are intended as an aid to those who desire to follow the occupation of steam-fitting or plumbing. The practical work includes the installation of piping for steam, water, or gas; a study of the principles involved in expansion, radiation, and water hammer. The work in plumbing takes up the construction of bends, traps, and various types of wiped joints; also a study of ventilation; the proper arrangement of soil and waste pipes, hot water boilers and tanks.

Prerequisites: Courses 23, 28.

Elective in the course in Mechanic Arts; five credits; five laboratory periods.

35. **Machine Shop.** The work in the machine shop includes both bench work and machine work. Upon first entering the shop the student is taught the principles of chipping, filing, and hand finishing. This occupies the first half of the semester. Machine work is then taken up through a series of exercises on lathe, shaper, planer, drill press, and milling machine. As soon as accuracy and proficiency are shown on the part of the student, he is assigned to construction work upon engines, dynamos, motors, or machine tools.

Required in the courses in Mechanical, and Electrical Engineering; junior year; first semester; three credits; three laboratory periods.

Prerequisite: Blacksmithing.

36. **Machine Shop.** A continuation of Course 35, devoted to machine construction and milling machine work. Special attention is paid to economical shop methods of doing work.

Required in the courses in Mechanical, and Electrical Engineering; junior year; second semester; three credits; three laboratory periods.

37 and 38. **Machine Shop.** These courses are a continuation of the work outlined in the junior year, and are intended for those who desire to devote further time to this branch, or for those who are engaged upon construction work in the preparation of theses.

Elective; three credits; three laboratory periods.

Prerequisites: Courses 35, 36.

MINING ENGINEERING.

Professor Parks.
Mr. Cooke.

1. **Crystallography and Blowpipe Analysis.** This course is intended as a preliminary one, and is a preparation for the work in Determinative Mineralogy, which follows. Only such portion of the subject is especially emphasized as is of practical value in the determination and proper understanding of minerals. The student is given a thorough drill in the more practical portion of the subject. The course is presented through lectures, textbooks, laboratory work, and individual quizzes. In the laboratory work, each student is required to become thoroughly familiar with crystal forms and combinations by working with the wooden crystal models, and later, with the aid of a pocket lens and contact goniometer, to determine the crystal forms of a great number of natural crystals.

Sophomore year; first semester; four credits; two recitations; two laboratory periods.

Prerequisites: Chemistry 1, 2; Mathematics 4, 5.

2. **Determinative Mineralogy.** In this course, about one hundred and sixty of the most important mineral species are presented by lectures, in which special emphasis is laid on the recognition of minerals by means of their physical properties and crystal forms. The course is not intended to train the stu-

dent to determine any mineral whatever, but rather to recognize at sight, with the aid of a pocket lens and knife, such minerals as are likely to be met with in actual mining work. With this object in view, as thorough a drill as time will allow is given in the actual handling and determination of minerals in the laboratory. In the work, each student is expected to handle, determine, and be examined on approximately twelve hundred individual specimens.

Sophomore year; second semester; five credits; three recitations; two laboratory periods.

Prerequisite: Mining Eingineering 1.

3. **General Geology.** This study deals with the principles of dynamical, structural, stratigraphic, and historical geology. It includes a discussion ot the different agencies, such as atmospheric, aqueous, igneous, and organic, which have been instrumental in producing the earth in its present form and structure. Students make excursions to places of geological interest to verify points discussed in the class room.

Sophomore year; second semester; four credits; four recitations.

Prerequisites: Mathematics 2, 3; Chemistry 1, 2.

4. **Engineering Geology.** This includes a discussion of the principles of dynamical and structural geology, as well as a study of the more common minerals and rocks, special emphasis being laid upon structural materials.

Elective in the course in Civil Engineering; sophomore year; second semester; three credits; three recitations.

Prerequisites: Mathematics 2, 3; Chemistry 1, 2.

5. **Economic Geology.** This course deals with the application of the science of geology in industrial relations and operations. It requires an elementary knowledge of chemistry, mineralogy, and geology, and includes the discussion of the mode of occurrence and origin of minerals and ore bodies, especially those containing the precious metals. Attention is also given to other natural products of economic value, such as coal, iron, petroleum, and building stones.

Senior year; first semester; three credits; three recitations.

Prerequisites: Mining Engineering 1, 2; Chemistry 1, 2, 3.

6. **Lithology.** The object of this course is to drill the student on all of the more commonly occurring rocks in such a way as to render their identification reasonably accurate. The methods pursued are purely those applicable to the hand specimens without the aid of microscopic sections. The subject is presented by means of both lectures and textbooks, supplemented by laboratory work.

Senior year; first semester; two credits; one recitation; one laboratory period.

Prerequisites: Mining Engineering 1, 2, 3.

7. **Excavating and Tunneling.** This study deals with discussions of the various methods of excavating and breaking ground, prospecting, boring, tunneling, and shaft sinking. The various tools used in excavating, boring, and drilling, and the use of explosives in breaking ground are described in detail in the class room.

Junior year; first semester; three credits; three recitations.

Prerequisites: Mining Engineering 1, 2, 3.

8. **Mine Surveying.** This course supplements the course in General Surveying, (Civil Engineering 2), taken in the Civil Engineering department. The student is taught the methods used in locating and patenting mining claims, and in underground surveying. Instruction is given in carrying the meridian into the mine, laying out the workings, keeping notes, estimating areas and tonnage, the plotting of notes, construction of maps, and many other duties which are usually assigned to the mining engineer. This will serve as preliminary to the more practical work in connection with the summer school.

Junior year; first semester; three credits; one recitation; field work, two laboratory periods.

Prerequisite: Civil Engineering 2.

9. **Mining.** This is a study of the various methods used in securing the mineral products, as well as the general management of mines. The subject includes methods of timbering; methods of mining, pumping, ventilation, transportation, hoisting, mine sampling, and reporting; installation of machinery, and surface improvements. The subject is presented largely through lectures and directed reference work.

Senior year; second semester; three credits; three recitations.

Prerequisites: Mining Engineering 7, 12.

10. **Ore Dressing.** A discussion of the various methods of concentration and the mechanical preparation of ores for metallurgical treatment. The subject is studied under the following main divisions: Jaw and gyratory breakers; rolls; stamps; special, and fine grinding apparatus; sizing apparatus, such as the various types of screens and classifiers; concentrating machinery, including jigs, tables, and vanners.

Senior year; first semester; three credits; two recitations; one laboratory period.

Prerequisites: Mining Engineering 2, 3, 12; Physics 3, 4.

11. **Mining Law.** The object of this course is to give the student a fundamental knowledge of the laws regulating the location, possession and operation of mineral rights in the United States. The prominent part which litigation plays in every mining camp makes it necessary for the mining engineer to be prepared along this line.

Senior year; second semester; one credit; one lecture.

Prerequisites: Mining Engineering 5, 8.

12. **Fire Assaying.** Instruction is given in the assaying of gold, silver, and lead in ores and metallurgical products by scorification and crucible methods. The student is given a thorough drill in the theory and reactions involved, supplemented largely by laboratory work, the subject being treated from a scientific and rational point of view rather than that of the "rule of thumb." Each student is required to make a large number of assays upon previously sampled pulps, which he must check within very close limits.

Junior year; second semester; four credits; one recitation; three laboratory periods.

Prerequisites: Chemistry 1, 2, 5; Mining Engineering 2.

13. **General Metallurgy.** This course is an outline of the metallurgy of all the common metals except iron, and is devoted to a description of the processes of obtaining the metals from their ores, as well as the refining of the metals. Some of the detailed parts of the study are: The physical properties of metals; refractory materials; construction and operation of the vari-

ous types of furnaces; fuels, calorimetry, and pyrometry; cyanidation and chlorination of gold ores; the Russel, Washoe, and other wet methods for silver. The various modifications of the cyanide process receives particular attention.

Elective; first semester; four credits; four recitations.

Prerequisite: Mining Engineering 2.

14. **Metallurgy of Iron and Steel.** This course is a discussion of the iron industry as we find it today. It includes the manufacture and purification of pig iron; manufacture of wrought iron and crucible steel; bessemer openhearth cementation and crucible processes for steel; mechanical treatment of steel; heat treatment of steel, etc.

Junior year; second semester; three credits; three recitations.

Prerequisites: Chemistry 1, 2; Physics 3, 4.

15. **Metallurgy of Copper.** This is a more advanced course in metallurgy, and includes a thorough and detailed study of the underlying principles upon which methods are based, rather than descriptions of processes or apparatus. It is the aim in this course to deal largely with the *reasons why* instead of the *means how.* Although the work deals extensively with copper, the principles are common to the whole subject of metallurgy.

Elective; first semester; four credits; four recitations.

Prerequisites: Mining Engineering 12, 13.

16. **Seminar.** The Mining Engineering Seminar meets once a week while the College is in session, and has for its members the students of the junior and senior classes, as well as the members of the instructing corps. At each meeting a prepared program is given, consisting of reviews of the most timely articles found in the current numbers of the technical journals, and papers on engineering subjects, both of which are discussed freely by the members of the Seminar.

Required of all students in the Mining Engineering course throughout the junior and senior years; one credit.

17. **Mining Engineering Summer School.** Immediately after the close of the College year in June, the junior and senior students go into some prominent mining district for a few weeks of summer work in surveying, and mine and metallurgical inspection. Visits are made to mills and smelters in operation.

The work is planned to develop the student's power of observation, and the ability to report concisely such observation. A large part of the time is devoted to making a survey of some mine.

Required in the course in Mining Engineering; at the close of the junior and senior years.

18. **Industrial Geology.** Lectures on the naturally occurring geologic products which are of economic importance with special reference to the undeveloped industries of the United States.

Required in the course in Commerce; junior year; second semester; three credits; three lectures.

COMMERCE.

Professor Bexell.
Professor Crawford.
Professor Horner.
Mr. Mathre.

ECONOMICS AND SOCIOLOGY.

1. **The Elements of Economics.** A discussion of wealth; nature and requisites of production; exchange and distribution; the relation of the production of raw material to manufacturing and exchange of products; diminishing returns from natural agents; labor and its increase; efficiency of production; credit, interest, wages, prices, and rent; taxation, public debt, free trade, and protection; money and banking; the labor problem, and co-operation.

Second year; second semester; three credits; three recitations.

2. **Advanced Economics.** (a) Lectures and Recitations. Three main purposes are kept in view in this course: a clear analysis of the mechanism, functions and philosophy of industrial society; a discussion of the fundamentals of wealth and monopoly, their origin, uses, and abuses; a dispassionate dis-

cussion of economic topics that have become political questions. Much reading and many reports are required.

(b) Research Course. Special stress is laid on the economic history of the United States. Reading of reports and theses under the direction of the Professor in charge.

Junior year; both semesters; two credits; two recitations.

3. **Sociology.** The main topics treated are the subject matter of sociology; relation of sociology to other subjects; sociology as a science; division of sociology; society as an organism; physical basis of society; association, the social mind, causes of social activity; industrial organization of society; the family, the state, and individual; description of social development; processes of social development; natural selection in society. Lectures, research, and thesis.

Elective; junior year; both semesters; four credits; four recitations.

BANKING AND FINANCE.

1. **Theory and Practice of Finance.** (a) Money. Money as a commodity, coinage, legal tender, gold standard, International Monetary Conferences, colonial bills of credit, revolutionary bills of credit, greenbacks, Confederate currency, silver dollars, panic of 1893, present conditions and problems.

(b) Banking. Practice and legal principles of banking, methods of raising capital, modes of organizing national and state banks, trust and finance companies, clearing houses, their practice, regulations, and importance, resources of a bank, and modes of lending them, duties of directors, president, cashier, tellers, bookkeepers, etc., public and private examinations and audits.

(c) Funding Operations and Corporation Finance. Money, funds, and credit, obtaining funds by inheritance, exchange, sales of commercial credit, long time paper, etc. Funding operations by the United States Treasury; the savings bank, building and loan associations, commercial banks, trust companies, brokers, and insurance companies. The general practice of funding corporations, and other large business enterprises.

(d) Public Finance. History of financial systems, theories of public expenditures, various methods and practices of taxation and other sources of income, public credit, relations of the Federal Treasury to our monetary system, the preparation of financial budgets and reports.

Sophomore year; first semester; three credits; second semester; four credits; three and four recitations, respectively.

2. **History of Finance.** This is a research course under the direction of the Professor in charge. It embraces (a) American, (b) European financial institutions, their history and development. Lectures, discussions and theses. Topics for investigation are also drawn from the following subjects: Commercial organizations, trusts, monopolies, and insurance.

Elective; senior year; both semesters; three credits; three recitations.

3. **Depressions, Panics, and Crises.** A continuation of Course 2.

Elective; senior year; second semester; three credits; three recitations.

PRODUCTION AND MANUFACTURE.

1. **Commercial Geography.** The main topics treated are: Natural conditions affecting commerce, human control of commerce, transportation and commercial routes; discussion of the leading countries of the world under the following heads: Climate, natural features, distribution of leading products, vegetable food products, vegetable and animal fibres, wood crop, minerals, manufacture, agriculture, and such collateral topics as may be necessary to supplement the work outlined. This course presupposes a fair knowledge of mathematical and political geography, and of general history.

Sophomore year; first semester; three credits; three recitations.

2. **Production and Manufacture.** (a) Production of Raw Materials. A survey of latent commercial possibilities, surface indications, unexplored regions, probable demands upon the earth through future inventions; possible outcome of inhospitable regions and of desert areas; effect of known latent resources upon the expectations and policies of mankind. Present resources of leading nations are then considered, together with

their influence upon trade routes. Agriculture, Forestry, Mining, and Fishing receive special attention.

(b) Manufacturing Processes. A study of manufacturing processes through which such commodities as wheat, cotton, sugar beets, tobacco and lumber pass, in going from the producer to the consumer. The work in indirect production considers cotton and woolen goods, steel, boots and shoes, etc. The history, development, and economic effects of labor saving inventions.

Elective; senior year; both semesters; three credits.

3. **Local Industries and Economic Geography.** (a) Local Industries. A discussion and investigation of the principal industries of Oregon and adjoining states. Possibilities of undeveloped industries, trade and transportation.

(b) Economic Geography of America. Topography, soils and mineral deposits; distribution of heat and moisture resulting in forests, farms and grazing lands; distribution of plant and animal life. Facilities for transportation and communication, harbors, roads, railways and canals.

Sophomore year; second semester; three credits; three recitations.

TRADE AND TRANSPORTATION.

1. **History of Commerce.** (a) Trade. The development in Egypt, Greece, Rome, Florence, Mediaeval Europe, etc., down to and including the commercial nations of modern times. Special attention is given to materials and machinery of commerce, to trade routes, and to the relations between commercial developments and other branches of the history of civilization. The principles of modern wholesaling and retailing is discussed and a description given of brokerage, jobbing, the commission business, general and special stores, department stores, and mail order houses.

(b) Transportation. A study of the American railway system, the several branches of the railway service, and the questions of public aid and public control. A study of inland navigation, and ocean shipping, with special reference to the United States. Lectures, assigned readings, and reports.

Sophomore year; both semesters; three credits; three recitations.

2. **International Trade and Transportation.** (a) Commercial Treaties. An historical and critical study of important commercial treaties; protective tariffs, and the theory of reciprocity; a survey of the chief questions connected with the history of our foreign relations from the appointment of the Committee on Foreign Relations in The Continental Congress to the present time.

(b) The Consular Service. The growth and importance of the consular service; the appointment, distribution, duties, and necessary qualifications of consuls. Studies and discussions of consular reports.

(c) International Transportation. The course deals especially with the merchant marine of the principal nations of the world. Importance of ship subsidies, inland waterways, canals, etc.

Elective; junior year; both semesters; four credits; four recitations.

LAW AND GOVERNMENT.

1. **Civil Government and Administration.** (a) Civil Government. Our European ancestors; origin of states and state institutions. English and American governments compared; Federal and State Constitutions; state and foreign service; the executive departments; federal and state powers; political parties and issues.

(b) Federal and State Administration. A survey of the administrative activities of federal, state, and municipal governments; governments from the sociological point of view. The financial operations, preparation of budgets and reports will be considered.

First year; first semester; three credits; three recitations.

2. **Commercial Law.** (a) Contracts in General. Formation of contracts; offer, acceptance, form and consideration; competence of parties, consent, and legality of subject matter. Operation of contracts, including limit of obligations and assignments; interpretation, rules of evidence and construction; dis-

charge of contracts; the agreement performance, breach of contract, etc.

(b) Negotiable Instruments. Maker's, acceptor's, drawer's, and indorser's contracts; proceedings before, upon, and after dishonor; proceedings in protesting; accommodation papers; grantor and surety; holder's position, defense, equities, etc.

(c) Partnership Law. Formation of partnerships, essentials, liability of members, capital, profits, good-will, individual and firm property; agency for partners; dissolution, winding up, priority of distribution, etc.

(d) Corporation Law. Kinds, formation, powers, liabilities, ownership, shares, subscription, calls, notice, transfers, management, officers, directors, contractional powers, dividends, dissolution, are discussed fully from the legal point of view. The Case method is used throughout the entire course. Lectures, discussions, and reports.

Second year; first semester; five credits; five recitations.

3. **Advanced Civics and Law.** (a) Comparative Study of Governments. A comparative study of the various systems of government; Greece, Rome, Great Britain, Germany, France, Switzerland, and the United States.

(b) International Law. Persons concerned; rights and duties of states; territorial jurisdiction; jurisdiction on the high seas; agents of the state treaties; settlements of disputes; war and its effects; military occupation; neutrality, contraband, blockade, etc.

Senior year; both semesters; three credits; three recitations.

4. **Constitutional Law and Politics.** (a) Constitutional Law. The Constitution; rise of the American Union; distribution and powers of the government; powers of congress; powers of the Executive; the judicial departments; checks and balances of governments; governments of territories and colonies; admission of new states; amendments to the constitution; civil rights and their guarantees; protection of persons accused of crimes; protection of contracts and property, etc. Lectures, readings, reports and thesis.

(b) American Politics. Origin of political parties in the United States; changes, growth and development; party platform, conventions, powers; administrative history of the United States from a political point of view. Present problems. Lectures, readings, and reports.

Not offered in 1908-9.

BUSINESS ADMINISTRATION.

1. **Business Organizations and Management.** (a) Firms and Joint Stock Companies. A study of the internal management of a large business; the different duties of the various departments; the advantages of different methods of organization as regards economy and the preservation of good will. Value of trade marks, patents, local interest, etc.

(b) Corporations. The growth of corporations; their causes and forms; the promotion, financeering, incorporation, and capitalization of corporate consolidation; their organization and securities; position and relation of stockholders and directors; receiverships and reorganizations.

(c) Theory and Practice of Advertising. A study of the fundamental principles of modern advertising. Special emphasis is given to the peculiarities of composition in newspaper and circular advertising, proof-reading, effectiveness of design, illustration, coloring, and display, follow-up systems, etc.

Elective; junior year; both semesters; four credits.

2. **Office Facilities and Practice.** (a) Commercial Forms and the Elements of Accounting. In this course the student becomes familiar with a great variety of labor saving forms used in the modern business office; the actual forms used by typical concerns in all parts of the country are studied and compared. Manifolding and labor saving devices of all kinds are studied with constant view to secure greater accuracy and to diminish work.

(b) Commercial Arithmetic and Mechanical Computation. In connection with Commercial Forms, much stress is laid on rapid methods of commercial calculations. Short methods, not usually emphasized in the regular courses, will receive special attention. The use of tables and machines to facilitate computation will be discussed.

(c) Business Correspondence and Filing. Special stress will be laid on the construction of forceful and correct business letters. Copying and filing by various modern methods will be considered.

First year; both semesters; five credits; five recitations.

3. **Accounting and Business Practice.** (a) Theory of Accounts. The laws of debit and credit reviewed and illustrated by correspondence with office practice, lectures and recitations; practice in checking, construction and interpretation of balance sheets; much practice in commercial correspondence; writing bills, invoices, receipts, bills of lading, legal forms, etc.

(b) Practical Accounting and Business Practice. A thorough and complete course in all the essentials of accounting as practiced in modern business houses. Inter-communication business is carried on between fellow-students, and commercial schools in the leading lines of business, affording excellent drill in correspondence and office practice.

The College maintains completely equipped offices in banking, transportation, real estate, brokerage, commission, retailing, and wholesaling. When all the theoretical work and the business practice is completed, the student is placed as manager of one of the offices and held responsible for all its operations.

Second year; both semesters; five credits; five laboratory periods.

4. **Advanced Accounting and Business Management.** (a) Bank Accounting and Auditing. A thorough study of bank accounting and auditing. Various systems are studied and compared. Office practice and inter communication work similar to that described under Accounting 3 forms a part of this course; but here the student assumes the management of the office, while the routine work is done by second year students. Recitations, lectures, and reports.

(b) Corporation Accounting and Auditing. A practical application of previous courses in accounting and business management as applied to corporations. Manufacturing, railroading and merchandising receive special attention.

(c) Cost Accounting. The theory and practice of cost accounting. The various methods used in England and America.

The relation of cost accounting to manufacturing, mining, transportation and other industries. After a thorough study of several typical concerns, the student is required to prepare an original cost system, which will form the basis of a thesis covering the work of the course. Recitations, lectures and reports.

Freshman year; both semesters; four credits; two recitations; two laboratory periods.

5. **Professional Accountancy.** (a) Public Accounting. This is a research course under the direction of the professor in charge. Special stress is laid on preparation for Certified Public Accountancy. The course embraces the following subjects (1) A general course in analyzing accounts of various typical corporations, and the installation of systems best suited to the business in hand. (2) The solution and discussion of a series of difficult problems selected from C. P. A. examinations.

(b) Public Auditing. The principles governing an audit of partnerships and corporations of any magnitude according to approved professional methods. The organization and methods of a typical firm of public auditors. The order of procedure in an actual audit. The auditor's reports and certificates. Actual audit of local concerns whenever practicable.

Elective; junior year; both semesters; four credits.

6. **Business Methods on the Farm.** (a) Accounting and Business Management. Farm bookkeeping and business forms; organization of a model farm from a financial point of view; marketing products; transportation and markets; household and personal accounts.

(b) Farm Arithmetic. Measurement of land and description of boundaries; measurement of lines, stocks, etc.; conversion of cubic measures into measures of weight and capacity; computation of inventories, bills, and pay rolls; dairy arithmetic, etc.

(c) Rural Law. The general principles of common and statutory law are discussed and explained; special phases of law affecting the farm, such as titles to real estate, deeds, mortgages, county records, etc.; landlord and tenant; eminent domain, and right of way; water rights, and boundaries; laws governing shipping, insurance, banking, etc., court proceedings.

(d) Rural Economics. The fundamental principles of Production, Distribution, and Exchange, with special reference to rural life.

Required in the course in Agriculture; second year; both semesters; two credits; two laboratory periods.

7. **Business Methods** similar to Course 6, adapted to the needs of stockmen, orchardists, mechanics, housekeepers, etc. The class work is the same as that of Course 6, but the individual work is modified to suit the requirements of each student.

Required in all courses except Commerce and Agriculture; second year; both semesters; two credits; two laboratory periods.

STENOGRAPHY.

1. **Theory and Practice of Stenography.** (a) Gregg Shorthand. This is an elementary course in the Gregg system of shorthand. The system is adapted perfectly to the hand, and enables the student to master the principles in a short time and to begin work from actual dictation early in the course. The dictation covers business correspondence in various branches.

(b) Touch typewriting. Beginning with simple exercises, the student learns correct fingering by the touch, or "sightless" method. Special attention is given to proper care and mechanism of the machine. The various standard makes of machines are studied and compared. As soon as a moderate speed is attained, transcription of shorthand notes is begun.

First year; both semesters; five credits.

2. **Advanced Stenography.** (a) Reporting and Office Practice. After a thorough review of the textbook, various forms of correspondence, legal documents, speeches, specifications, editorial matter, court testimony, etc., are taken up. Each student will be called upon to serve as secretary to members of the Commercial Faculty from two to four weeks during the last semester of his course.

(b) Typewriting, Manifolding and Filing. An advanced course for those who specialize in stenography. In addition to the elementary principles given in Stenography 1 a, the student makes copies of correctly written correspondence, legal forms, etc.; also personal composition and dictation. Much time is devoted to manifolding and filing. This course must be taken in connection with Stenography 2 a.

Second year; both semesters; five credits.

3. **Court Reporting and Office Management.** (a) Reports of Lectures. The student is required to submit not less than twenty verbatim reports of lectures and addresses during the year. The reports must be properly transcribed and submitted to the teacher for approval.

(b) Court Reporting. In this course the student is required to spend a large share of his time in the courts, and to render at least twenty verbatim reports, properly transcribed. A large amount of additional legal work will be required.

The finished work of the entire course must be passed on by the Dean and the Professor in charge.

4. **Typewriting.** A special course in Typewriting arranged for students who do not take Stenography.

Required in the course in Forestry; first year; both semesters; two credits; four laboratory periods.

5. **Penmanship.** (a) Writing Practice and Lettering. Students entering the first year are expected to have acquired a good hand in the grades, but considerable time is devoted during the first term to mastering the best form of business writing and lettering. Lettering, display cards, and design receive some attention.

(b) Business Correspondence. A very large number of letters on a great variety of subjects is required in this course. Designing and preparing commercial papers and documents.

Given as part of Business Administration 2.

ELECTIVES—1908–1909.

The following Electives will be offered to Juniors and Seniors during 1908-1909:

To Juniors: (1) Business Administration 1 and 5. A research course in Public Accounting, Auditing, Administration and Business Organization, 4 credits. (2) Economics and Sociology 3; 4 credits. (3) Trade and Transportation 2; a research course; 4 credits.

To Seniors: (1) Banking and Finance 2 and 3 (History of Finance); 3 credits. (2) Production and Manufacture 2; a research course; 3 credits.

Thesis: A thesis will be required in each of the above elective courses. The subject must be announced by the Dean to the College Council during the first term, and a finished copy must be in the hands of the Professor in charge not later than May first. When approved, a bound (either typewritten or printed) copy must be deposited in the College Library.

Special Lectures. A series of lectures on practical business subjects will be given during the year by prominent business men of the state. Following is a tentative list of subjects during the present year: Present Problems in Finance; Organization of a Bank; Organization of a Railroad; Organization of a Department Store; The Fishing Industry of Oregon; The Lumber Industry of Oregon; The Business Side of Farming; Commercial Expansion of the United States; Duties and Responsibilities of the Public Accountant; Captains of Industry; The Industrial Manager; Duties and Responsibilities of the Bank Cashier; Education for Business; The Power of Advertising.

FORESTRY.

Professor Lake.

This course of instruction aims primarily to fit the forester to care for the forest and its crops as the farmer cares for the farm and its crops. It likewise aims to meet the needs of those men who desire to enter the government forest service as fire wardens, rangers, and cruisers, but who feel that they cannot take the time necessary to complete a degree course. The course also aims to serve those who expect to make forestry their profession by preparing them for advanced work in the higher technical courses of the graduate forest schools.

The student is closely associated with the forestry impulse from date of entrance upon College duties "The Forest Club," an association of students and instructors, "formed for the purpose of promoting the forestry interests of the state," claims him as an active member upon registration and he is at once assigned to work upon some live forestry topic. The Club work continues throughout the course and is an important factor in several ways.

The course contemplates that the student shall do as much of the real work of forestry as is practicable under the conditions of environment of a college course. Frequent excursions to the near-by forests of the coast range, together with visits to the various milling and manufacturing plants easily accessible to Corvallis, are features of the course. Ecological, dendrological, and sylvicultural, studies may be pursued with advantage in the coniferous and mixed forests that occupy the foothills and higher benches of the coast range of mountains adjacent to the college grounds on the west, while studies in mensuration, protection, reforestation, grazing, and other phases of the work, may be conducted under most favorable conditions at "Camp Reserve" in the heart of the Cascade Mountains near Mt. Jefferson.

1. **Club Work.** The Forest Club meets twice each month for the discussion of current forestry literature, legislation, news items, and general progress movements pertaining to forestry, forest service, forest products, forest industries, lumbering and the lumber trade.

First and third Fridays each month 7 P. M. throughout the course; one credit.

2. **Club Work.** In addition to work outlined in Course 1, juniors are required to take an active part in the affairs of the Camera Club, an organization for the advancement of "Camera Craft." Besides the discussion of topics pertaining to lenses, camera outfits, plates, films, negatives, lantern slides, transparencies and general technique, there are occasional lectures on Art and Nature, artistic photographs, photographic illustration and frequent demonstrations of materials and processes.

First Thursday each month, throughout the year, 7 P. M.; one credit.

3. **Club Work.** In addition to the work of Course 1, seniors are required to take an active part in the "Rod and Gun Club," an organization having for its special field of work the study of all matters pertaining to the fish and game interests of the forests and game preserves, game laws, game breeding, game protection and similar subjects.

Second Friday each month, throughout the year, 7 P. M.; one credit.

4. **The Forest.** This course considers the principles underlying the growth, development and maintenance of forest areas; the tree as a factor in forest types and as a unit in the forest crop; and a brief outline of forestry in Europe together with the history of the forestry movement in America and its present status.

Freshman year; first semester; three credits; three lectures.

5. **Sylviculture.** The principles of seedage as applied to forest trees. The structure, dissemination, germination, vitality, collection and preservation of tree seeds; seed beds, nursery practice, transplanting, pruning, thinning, pure and mixed plantings, nurse trees, reproduction by coppice, seeds, plants.

Freshman year; second semester; two credits; two laboratory periods.

6. **Dendrology.** The study of trees from a taxonomic standpoint. Particular stress is placed upon those features which enable one to identify trees afield.

Sophomore year; first semester; four credits; two lectures; two laboratory periods.

7. **Forest Industries.** A discussion covering the various industries dependent upon forests and forest products, together with the consideration of questions relating to improved ways of utilizing our forest crops.

Sophomore year; second semester; four credits; four recitations.

8. **Forest Administration.** General principles of administration; working plans; estimation; methods of harvesting the crop; principles governing the execution of working plans.

Junior year; first semester; four credits; three recitations.

9. **Forest Economics.** A consideration of taxation, tariff, transportation, markets, labor, organization, trusts, public welfare, commerce.

Junior year; second semester; three credits; three recitations.

10. **Forest Finance.** The value of the forest; stability of given to the higher class of toilet preparations as well as to investment; dividends on the investment; local problems in forest finance.

Junior year; second semester; one credit; one recitation.

11. **Lumbering.** Lumbering practices; utilization of waste; cutting; seasoning; commercial standards; bridge stuff; framing; sheathing; finishing; lath; shingles; furnishings; sash, doors. and blinds. Grading lumber; markets and marketing.

Senior year; first semester; four credits; one lecture; three laboratory periods.

12. **Timber Technology.** Timbers as to strength; toughness; firmness; flexibility; grain and texture; warping; swelling; density; and the influence of these properties upon the market value of timbers; factors which determine the values and uses of various economic woods.

Senior year; first semester; four credits; one lecture; three laboratory periods.

13. **Forest Policy and Protection.** Legislation for forest conservation, protection and renewal; National and State enactments regarding reserves, parks, water-sheds and irrigation. The relation of forests to National and State industries, statistics protection against fires, trespass, insects, diseases, weeds and storms.

Senior year; second semester; five credits; lectures and recitations.

Summer Camp.

All students in the regular course in forestry will be required to spend two sessions of eight weeks each during July and August of the junior and senior years in the forest One session is required at "Camp Reserve"; a part of the other, at the option of the Forester, may be spent in lumber camps, mills or factories. The object of these summer sessions are two-fold; to give the student a practical working knowledge of the subject in hand, and to advance his technical training. In view of these ends the work of the summer session is diverse and is presented in two general ways, lectures and fieldwork.

Lectures. The junior year lectures are presented as a series of camp-fire talks and discussions covering the following topics:

Methods of field-work; forest transportation, trail and road construction; pack animals, selection, care, and management; forest-service, duties of fire and game wardens, rangers, and other officers; forest physiography including field geography, geology, and plant distribution; timber cruising, mensuration; forest fires, prevention, fighting, remedies; grazing in forest areas; fish and game; hunting, trapping, fishing and breeding.

Woodcraft. This is a series of daily practical exercises in field forestry. The subjects with which the student will be required to have an actual working knowledge are: packs and packing; trail and road making; camp equipage; camp making; camp fires; water supply; camp cooking; woodsmen's tools, their use and abuse; use and care of fire arms; dressing and preserving game; care of skins, furs, hides, and pelts.

Field Work. Observations, general and special, daily or weekly assignments; geology, meteorology, hydrography, biology, dendrology, sylviculture, mensuration, records, charting, mapping, photographing.

Time Factor. The field work in the junior year camp session is apportioned in hours as follows: Surveying 72; mensuration 72; dendrology 40; sylviculture 40; botany 20; zoölogy 24; entomology 20; geology 24:

Office work, mapping and charting 32; records 8; lectures, fish and game 8; forest service 12; general topics 12.

Lectures. The senior year lectures will cover the following topics: Influence of forest and trees upon national life; forest laws; forest policies; forest management; forest administration; national forests; national and state parks and their values; the forest as a health resort.

Field Work. The field work for the senior year will cover the following subjects: Logging; transportation of timber; camp management, milling, pulping, distilling, utilizing waste, preserving timbers and lumber. working plans.

PHARMACY.

Professor McKellips.
Mr. Harding.

1. **General Pharmacy.** This course is a general introduction to the subject of pharmacy, given by means of series of lectures wherein the student is made familiar with the conditions which led to the origin of the practice of pharmacy as a profession separate and distinct from that of medicine. Attention is directed to the purposes of the profession, to the scientific principles underlying it, and to the proper means for comprehending these facts with a view to their intelligent application.

The drugs, chemicals, and prepared medicines of the U. S. Pharmacopoeia are made the subject of a series of recitations.

Junior year; first semester; two credits; two recitations.

2. **Nomenclature.** The Latin language is universally recognized as the language of science. The names of all plants and animals and of many natural objects in the material world are recorded in this language. These Latin names, in so far as they have connection with the profession of pharmacy, are made the subject of systematic study.

Junior year; first semester; one credit; one recitation.

3 and 6. **Pharmacognosy.** This subject deals with the scientific classification of the plants and animals which furnish the crude drugs used in pharmacy. The relation existing between the various drugs is shown, and the student is thoroughly drilled in memorizing the classifications and in learning from what parts of the world the drugs are obtained. He is instructed as to what particular portion of the plant or animal finds use in medicine and learns to recognize by some physical characteristic—appearance, odor, taste, etc.—samples of all the important drugs. Extensive cabinets of sample drugs are kept for this purpose.

Junior year; first semester; one credit; one recitation: second semester; two credits; two recitations.

4. **Therapeutics and Doses.** The definition of medical and therapeutical terms, the classification of medicines into groups according to their therapeutical action, and the consideration of the subject of dosage, are matters to which the attention of the student is directed at this time.

Junior year; first semester; two credits; two recitations.

5. **General Pharmacy.** A continuation of Pharmacy 1 to which is added the feature of laboratory practice. The student takes up the various classes of pharmaceutical preparations and becomes familiar with the correct manner of their manufacture.

Experience has demonstrated the value of the laboratory as a factor in technical and scientific education. For this reason the course in pharmacy as offered at this institution is one in which this feature is given unusual prominence.

From crude drugs, as barks, leaves, roots, and seeds, the student manufactures finished pharmaceuticals, such as tinctures, fluid extracts, elixirs, tablets, pills, etc. Using the United States Pharmacopoeia as a laboratory manual, the student has the official requirements for purity and strength constantly before him, his attention thus being directed to these matters in a practical way.

Junior year; second semester; four credits; one recitation; three laboratory periods.

7. **General Pharmacy.** A continuation of Course 5 in which the more difficult pharmaceuticals, not considered in the preceding course. are taken up and manufactured Attention is given to the higher class of toilet preparations as well as to galenicals.

Senior year; first semester; three credits; six laboratory periods.

8 and 11. **Materia Medica and Toxicology.** As indicated by the name, this course is devoted to the study of "Medical Materials." All substances which find general use in medicine are here given attention. All are classified with respect to the action they have upon the human system. Crude drugs are grouped according to the plant constituents, as alkaloids glucosides, and oleoresins, which they contain. Pharmaceutical prep-

arations are studied with respect to composition and strength; chemicals, according to solubility and incompatibility.

The student is drilled in the matter of the recognition of pharmaceutical preparations and of chemicals. The many common names, or synonyms, in use in connection with materia medica are memorized.

With respect to their poisonous characteristics, those substances prominent in this class are studied as a special group. The symptoms they produce, the proper methods for counteracting and preventing their harmful effects, are matters that receive the careful consideration of the students. Provisions of the law regulating the sale of poisons within the state are explained in detail.

Senior year; both semesters; three credits; three recitations.

9 and 10. **Prescription Practice.** This work is sometimes spoken of as "extemporaneous pharmacy" and is justly regarded as that division of the profession belonging to the expert. The ability to compound, properly, intricate formulas at a moment's notice, is an art that can be acquired only by persistent study and painstaking practice. Opportunity for practice of this nature is here given. Prescriptions written by practicing physicians in various parts of the country have been collected. These afford the students practice in reading, itself often a matter of difficulty. Prescriptions presenting various types of incompatibility are compounded, as are others which afford experience in overcoming manipulative difficulties.

Senior year; first semester; three credits; second semester; five credits; two recitations; six laboratory periods.

ZOOLOGY, ENTOMOLOGY, AND PHYSIOLOGY.

Professor Cordley.
Mr. Bridwell.
Mr. Cate.
Mr. Ewing.
Mr. Griffin.
Miss Hill.

The instruction in this department is designed to give a general survey of the field of zoology. It aims to develop an interest in the study of native birds, insects and other animals, their relation to the plant world, to each other and to man's welfare. By means of lectures, laboratory work and field observations the student becomes familiar with the structure and habits of a few representative forms, learns something of their relationships and of the relative economic importance of the various groups and of the biological laws which govern their development. The work is adapted so far as possible to the particular needs of students in Agriculture and Domestic Science and Art. Exceptional opportunities are offered to those who desire to teach Physiology or Nature Study in the public schools. In connection with the courses in Pharmacy the required work forms a valuable pre-medical course.

The instruction in General and Economic Entomology is intended to provide the student with sufficient training to enable him to identify the common insect pests, understand their habits and life-histories. and apply the most approved methods for their control. The lectures upon Crop Pests also deal with the principal fungous diseases of crops and their control.

Advanced students in Entomology are provided with excellent opportunities for special instruction and research work.

The laboratories of the department occupy seven rooms on the third floor of Agricultural Hall and are well supplied with apparatus, reference books, bulletins, periodicals and collections.

1. **Biology.** An elementary course designed to give the student a fundamental conception of the structure and physiological activities of animals and of their relation to the work of the world. Incidentally, it introduces the student to laboratory methods of study, familiarizes him with the use of simple and compound microscopes and simple reagents, develops his perceptive powers, gives him practice in recording his observations in the form of notes and drawings, and in connection with Botany 1, lays the foundation for the study of scientific agriculture, which is but the interpretation and application of biological laws.

The laboratory work begins with a careful study of the newt, but particular attention is given to the study of the single-celled forms, since it is believed that the student can thus best gain the desired conception of the origin of the activities of higher animals. Consideration is likewise given to the economic importance of these low forms, and their relation to certain diseases of man and of domestic animals.

Required in the courses in Agriculture, Domestic Science and Art, and Pharmacy; freshman year; first semester; three credits; one lecture; two laboratory periods.

2. **Zoology.** A field and laboratory study of invertebrate animals which are economically important. Particular attention is given to the habits of those which are parasitic upon man or upon domestic animals, such as the liver-fluke, tape-worms, trichina and other nematodes; to those which attack cultivated plants like the nematode root-worms, mites, insects, etc.; and to those having food value, i. e., clams, oysters, crayfish, shrimps. crabs, and lobsters. Such other types are studied as are considered necessary to give the student a proper perspective of the invertebrates as a whole and to illustrate various biological laws.

Required in the courses in Agriculture, Domestic Science and Art, Commerce and Pharmacy; sophomore year; first semester; three credits; one lecture; two laboratory periods.

3. **Zoology.** A continuation of Course 2, but dealing with such vertebrate types as Amphioxus, lamprey, fishes, frogs. snakes, birds, and mammals. Together with Course 2, it is

designed to give the student a general idea of the animal kingdom as a whole, and of the relative economic importance of the various groups.

Required in the courses in Agriculture, Domestic Science and Art. and Pharmacy; sophomore year; second semester; three credits; one lecture; two laboratory periods.

4. **Physiology and Hygiene.** This course includes a study of the chief functions of the human body and of the principles of hygiene. As a foundation for the study of function the laboratory course includes some work upon the gross anatomy and the histology of the various tissues and organs of a typical mammal. It also includes experiments and demonstrations with foods as the source of energy, their digestion and absorption, the composition and circulation of the blood, nerve-muscle reactions. etc. Especial emphasis is placed upon the relation of pure air, mental and physical habits, food, dress, bathing, work, and recreation, to health and work capacity.

Required in the courses in Domestic Science and Art, Commerce, and Pharmacy; junior year; first semester; three credits; two lectures; one laboratory period. Elective in the course in Agriculture.

5. **Physiology and Hygiene.** A continuation of Course 4. Courses 4 and 5 are especially valuable to those who expect to teach physiology in the public schools, and in connection with the work in Pharmacy, form a valuable pre-medical course.

Required in the courses in Domestic Science and Art, and Pharmacy; junior year; second semester; three credits; two lectures; one laboratory period. Elective in the course in Agriculture.

6. **General Entomology.** An introduction to the study of insects with special reference to economic forms. Agricultural students may give chief consideration to those species which are destructive to farm crops or which are parasitic upon domestic animals; horticultural students may consider the insects of the orchard; while Domestic Science and Art students study the life-history and habits of mosquitoes, flies, cock-roaches, ants, carpet-beetles, clothes moths, and other household pests or those which prey upon the plants of the vegetable or flower

garden. In all cases preventive and remedial measures are given consideration. The laboratory work consists of a preliminary study of the anatomy of the grasshopper with comparative work upon other types. Sufficient field work in collecting, and laboratory work in properly mounting and classifying insects, is provided to make the student familiar with the principal orders of insects. The course thus becomes at once an elementary course in economic entomology for those who can pursue the subject no further, and an introductory course for those who desire to specialize in this branch of science.

Elective in the courses in Agriculture and Domestic Science and Art; junior year; first semester; five credits; three lectures; two laboratory periods.

7. **Advanced Entomology.** This course is designed for those who desire to specialize in entomology. The instruction includes lectures and reference reading upon the biology of the principal families of insects supplemented by laboratory studies of typical life-histories. Considerable time is devoted to studying the habits of insects, particularly injurious species, in the field; to collecting, rearing, mounting and classifying them; and to becoming proficient with entomological methods and literature.

Elective in the courses in Agriculture and Domestic Science and Art; junior year; second semester; five credits; three lectures; two laboratory periods.

8. **Advanced Entomology.** A continuation of Course 7.

Elective in the courses in Agriculture and Domestic Science and Art; senior year; first semester; five credits; three lectures; two laboratory periods.

9. **Advanced Entomology.** A continuation of Courses 7 and 8.

Elective in the courses in Agriculture and Domestic Science and Art; senior year; second semester; five credits; three lectures; two laboratory periods.

In connection with Courses 7, 8, and 9. the student will be required to present a thesis detailing the results of a systematic study of some restricted group of insects or of the biology of some particular species or group of species.

10. **Crop Pests.** A course of lectures, laboratory and field observations upon the chief insect pests, fungous and other diseases of cultivated crops. Instruction and practical work is provided in the preparation of sprays and in the use of various types of spraying machinery, fumigation and other approved methods of reducing the losses from the various crop pests. The course is designed to furnish the student with that practical information which experience has shown is most often desired by farmers or orchardists.

Elective in the course in Agriculture; senior year; first semester; three credits; two lectures; one laboratory period.

11. **Crop Pests.** A continuation of Course 10.

Elective in the course in Agriculture; senior year; second semester; three credits; two lectures; one laboratory period.

12. **Animal Parasites.** A course of lectures, demonstrations, and collateral reading upon the principal parasites of domestic animals.

Elective in the course in Agriculture; junior or senior year; second semester; one credit.

13. **Embryology.** A study of the development of the chick designed particularly to make the student more proficient in microscopical methods such as killing, fixing, imbedding, sectioning, staining, reconstruction from serial sections.

Elective in the courses in Agriculture, and Domestic Science and Art; junior or senior year; second semester; three credits: one lecture; two laboratory periods.

CHEMISTRY.

Professor Fulton.
Professor Bradley.
Mr. Tartar.
Mr. Harding.
Mr. Brodie.
Mr. Cunningham.

It is a difficult matter to state in a brief preamble the function of chemistry in a college course, but its necessity both in mental development and as a culture study is admitted without question.

Chemistry opens the way for the intelligent study of nature, for while it deals specially with inanimate matter no change of any magnitude can take place in any mass of material, when a change of nature in the material is a result, that is not dependent upon chemical action.

To the individual who would take up this fascinating branch of natural science, there will come the necessity for care, patience, cleanliness, exactness, conscientiousness, and other qualities that make up the elementary virtues. The possibility of accident tends to encourage his thoughtfulness for himself and his associates and compels care. Absolute accuracy must prevail or failure will result; this impels patience. Foreign materials interfere with results; this demands cleanliness. The most minute detail in manipulation must be observed; this engenders exactness. And the certainty of being called to account for his results favors the development of conscientiousness, a quality without which all others are of minor importance.

The beginners' course consists essentially of the proof of some of the well known chemical laws, such as the law of conservation of matter, the law of definite proportions and of multiple proportions, the Law of Boyle and the Law of Charles. The student attains skill in the manipulation of apparatus, and in the management of equipment in general. From this elementary work he proceeds to qualitative analysis, in the study of which he is taught to separate and identify the different elements composing the mass, and, in the case of metals, to learn of their properties, their uses, the different methods of obtaining them from their ores, and the combinations in which they occur in nature.

If he has shown suitable proficiency, he advances to quantitative analysis, which is the determination of the amounts of the ingredients. He is taught both methods of analysis, volumetric, or the method by solution, and the gravimetric, or the method by precipitation and weighing. On completing these courses, the student is fairly well prepared to take up advanced work in any particular line. He can proceed in agricultural chemistry, which treats of the analysis of soils, manures, cattle foods, dairy products, etc., or he can take up the subject from the inorganic side in the analysis of minerals, fuels, oils, gas, etc., or he can view it from the pharmacist's standpoint, in analyzing drugs. And finally, as a graduate student, he may proceed intelligently along original lines of study and research.

1. **General Chemistry.** This course deals with the general principles of the science, and extends through the division known as non-metals.

Required of all students. Freshman year; first semester; four credits; two lectures and recitations; two laboratory periods.

2. **General Chemistry,** Descriptive. This is a continuation of Course 1, and extends through the first third of the second semester. The same time is required as in Course 1.

Prerequisite: Course 1.

3. **Qualitative Analysis.** This course consists largely of laboratory practice in the ordinary processes of separating and identifying metallic radicles, or ions.

Freshman year; two-thirds second semester; four credits; one recitation; three laboratory periods.

4. **Sanitary and Applied Chemistry.** This course consists of recitations and laboratory practice in the determination of impurities in water for domestic purposes, together with identifying preservative and coloring matters in foods, dairy produ-

ucts, and canned goods. Also the subjects of air, heating, lighting, and ventilation are studied.

Freshman year; second semester; four credits; two recitations; two laboratory periods.

Prerequisite: Course 1.

5. **Quantitative Analysis.** This is a course in gravimetric and volumetric analysis, designed principally for Mining students. It consists of analysis of limestones; iron, lead, and zinc ores; slags, and other metallurgical products.

Sophomore year; first semester; four credits; one recitation; three laboratory periods.

6. **Organic Chemistry.** The work of this course consists of the study of the more typical and simple organic compounds, and is designed chiefly for the students in Pharmacy, and for those Agricultural students who intend to elect Physiological Chemistry, and Veterinary Science.

Sophomore year; first semester; four credits; two recitations; two laboratory periods.

7. **Agricultural Chemistry.** This course will treat of the chemistry of soils, fertilizers, insecticides, and fungicides. The laboratory work will be adapted to the needs of the individual student. The lectures may be taken without the laboratory work, counting as two credits.

Junior year; first semester; four credits; two recitations; two laboratory periods.

8. **Agricultural Chemistry.** This is a continuation of Course 7 and consists of lectures on the general principles of analysis of cattle and other animal foods, both that which is raised on the farm for home consumption, and that found on the markets as concentrated foods, and of dairy products.

Junior year; second semester; four credits; two recitations; two laboratory periods.

9. **Elementary Quantitative Analysis.** This course consists of a consideration of the fundamental laws of chemistry with respect to solutions and precipitates. Much stress is laid on stoichiometrical relations. It is designed especially for Pharmacy students, but may be found advantageous for any others desiring to extend their knowledge in chemistry.

Sophomore year; second semester; four credits; one recitation; three laboratory periods.

10. **Pharmaceutical Analysis.** This course consists of the separation, identification, and determination of the active principles of alkaloidal drugs and galenical preparations, and is designed for students in the Pharmacy course and those who intend to study medicine.

Junior year; first semester; four credits; four laboratory periods.

11. **Urinalysis and Toxicology.** This course is for Pharmacy students and consists of the chemical examination of urine, and the methods for identifying the alkaloidal and mineral poisons.

Required in the Pharmacy course; junior year; second semester; two credits; four laboratory periods.

12. **Engineering Chemistry.** This course is designed particularly for students in Mechanical and Electrical Engineering. It consists of the analysis of coal, oil, and gas, and of their calorific powers; also the technical analysis of flue gases.

Junior year; second semester; two credits; two laboratory periods.

Prerequisites: Course 9 or 5.

13. **Stoichiometry.** A study in chemical arithmetic for students in analytical chemistry.

Junior year; second semester; two credits; two lectures and recitations.

14. **Electro Chemistry.** This course is for advanced Mining Engineering students and consists of the application of the electric current to solutions of the different metals in metallurgical analysis.

Required in the course in Mining Engineering; senior year; second semester; three credits; one recitation; two laboratory periods.

15. **Chemistry of Foods.** This course includes the analysis of the more important food products, such as flour and breakfast foods, and also such materials as alcoholic beverages, condiments, baking powders, sugars, and syrups. Methods for detecting the common adulterations are considered at length.

Senior year; second semester; five credits; one lecture; four laboratory periods.

Prerequisite: Course 9.

16. **Mineral Analysis.** This course may be taken by anyone desiring advanced work in Quantitative Analysis. It consists of the theoretical and practical study of the most approved methods of determining the composition of complex compounds. Time to be arranged.

Elective; first or second semester; five credits; two lectures; three laboratory periods.

17. **Economic Chemistry.** A practical study of the chemical processes involved in the production of various commodities, including iron, steel, copper, and other metals; soaps, dyes, paints, fertilizers and the like. This course is intended to familiarize the student with the application of chemistry to modern industry.

Required in the course in Commerce; junior year; both semesters; three credits; two lectures; one laboratory period.

BACTERIOLOGY.

Professor Pernot.
Mr. DeHaven.

The science of bacteriology has reached a stage in its development where it is within the reach of all students taking a collegiate course. A knowledge of the subject has heretofore been confined principally to the medical profession, but since its relation to agriculture and the domestic arts has become better understood, the teaching of the subject has been added to the curriculum of higher institutions of learning.

Bacteria play such an important role in the economy of nature, and are so closely associated with our everyday lives, both in health and disease, that it becomes essential for a modern student to acquire a knowledge of what bacteria are and what they do. This College has a well equipped bacteriological laboratory for the investigation and study of bacteria in all their relations to the industries.

1. **Sanitary Bacteriology.** This course deals with the sanitation of the home; water supply; sewers and drains; ventilation and hygiene of the sick room.

Elective; senior year; first semester; two credits; two recitations.

2. **Home Bacteriology,** relates to the study of yeasts; fermentation; principles of canning; care of milk and food; utilization of waste products; vinegar making; preservation of meats.

Elective; senior year; second semester; two credits; two recitations.

3. **Dairy Bacteriology.** This is the study of bacteria in their relation to milk and milk products. The course considers the source of invasion; reaction upon milk; control of growth; usefulness of certain varieties.

Elective; senior year; first semester; two credits; two recitations.

4. **Economic Bacteriology,** treats of the economic use of pure cultures of micro-organisms in butter-making; methods of perpetuating pure cultures for starters; controlling flavor of cheese by the use of pure cultures of selected organisms; enzymes in curing cheese; preserving cheese and butter; laboratory demonstrations in detecting pathogenic bacteria in milk, impure milk, and milk from diseased cows.

Elective; senior year; second semester; two credits; two recitations.

5. **Soil Bacteriology,** consists of lectures and recitations in the general subject relating to micro-organisms of the soil, nitrifying germs of the legumes, how cultivated and used in inoculating, care of the organisms in the soil, value of organisms in manure.

Elective; senior year; first semester; two credits; two recitations.

6. **Pathological Bacteriology,** is a study of pathogenic bacteria infecting domestic animals. The course includes a consideration of laboratory demonstrations with guinea pigs inoculated with infectious organisms; symptoms and lesions formed; infection and contagion; principles of immunity.

Elective; senior year; second semester; two credits; two laboratory periods.

7. **Elementary Bacteriology** consists of a series of lectures and laboratory demonstrations to familiarize the students with the underlying principles of bacteriology as applied to every day life.

Required in the course in Agriculture; sophomore year; first semester; one credit; one lecture.

8. **General Bacteriology.** This is the regular required course in bacteriology for Pharmacy students, fitting them to carry on any ordinary bacteriological work. The course is a series of recitations and lectures covering the subject in a theoretical way.

Required in the course in Pharmacy; senior year; first semester; three credits; three recitations.

9. **Practical Bacteriology** is a continuation of general bacteriology. It is a course in practical laboratory work in making culture media; plate cultures; a study of colonies; planting on various media; quantitative analysis; classification; examination of pathological specimens; examination of sputum.

Required in the course in Pharmacy; senior year; second semester; three credits; one recitation; three laboratory periods.

10. **Major Bacteriology.** Beginning with the first semester of the junior year, a student may take bacteriology through the two semesters of that year, then continue advanced work through the two semesters of the senior year. The subject is first studied theoretically to prepare the student for subsequent work.

Elective; junior year; first semester; five credits; five recitations.

11. **Laboratory Practice,** a continuation of Course 10. The laboratory work begins by familiarizing the student with all bacteriological apparatus and its use, then gradually advancing into making culture media; filling and plugging tubes; sterilizing, plate culture work; study of colonies; planting on various media; study of morphology and classification.

Elective; junior year; second semester; five credits; five laboratory periods.

12. **Technical Bacteriology.** A course of lectures and laboratory work in pathogenic germ diseases of stock and poultry. Topics for consideration are, a study of vaccines; their manufacture and use; nitrifying bacteria of leguminous plants; bacteria in the soil; bacteriological analysis of water.

Elective; senior year; first semester; five credits; one lecture; four laboratory periods.

13. **Advanced Bacteriology.** This course includes advanced work along the lines of original investigation; pathological bacteriology; experimental bacteriology; sanitation; immunity and prevention of disease; use and application of antiseptics; practical disinfection.

Elective; senior year; second semester; one lecture; four laboratory periods.

14. **Thesis Bacteriology.** A thesis may be selected in this subject, beginning with the first semester, junior year, major bacteriology, and continuing through four semesters.

Elective; junior and senior years; two credits for each semester.

All theses must be the result of original investigations.

The major course equals a course in bacteriology in any of the medical schools, and is recommended to those students who contemplate studying medicine, dentistry, or professional nursing.

BOTANY.

Professor Lake.
Miss Gilkey.

The instruction in Botany is designed primarily to equip the student with a practical working knowledge of plants as to their structure, functions, processes, life work, and economic properties. While the several courses are arranged to meet the particular needs of those who contemplate the care of garden, orchard, field and forest crops, they are sufficiently plastic to meet the requirements of those who desire to pursue teaching or research in this subject. The elementary courses are well adapted for the instruction of those teachers who expect to conduct nature study classes in the public schools. The several courses of instruction cover the subject from the simplest phases of plant relationship to advanced research. New equipment makes it possible for the department to conduct original work in the various plant processes, as photosynthesis, respiration, transpiration, and growth. By the payment of nominal fees students have the use of individual laboratory sets, including dissecting and compound microscopes; chemical reagents; sectioning material, mounting apparatus, staining, and preserving media. Thus every student is insured the opportunity to do individual work, a consideration of first importance to the earnest, ambitious student in any line of work.

The course throughout contemplates a close association with plants in their various home surroundings, as garden, field, and forest. The plant is studied as a living organism, having a definite work to perform, and possessing for this purpose a more or less complex structure most delicately adjusted. The student through this close contact, finds the plant to be a living, self-propelling machine of marvelous intricacy, doing a world's work of prime necessity. Incidently the work trains the eye to discriminate keenly, the hand to record accurately through sketches and illustrations with both pen and pencil, and the mind to discern readily the great plan underlying plant development in the progress of world building.

Text and reference books are used chiefly for the purpose of furnishing outlines of work, suggestions, or collateral information. The plant itself is the real source of the student's knowledge of vegetable life, its functions and processes.

To the student who is well grounded in the elements of plant structure and the principles of vegetable processes is assigned the task of answering by means of laboratory and field experiments various problems pertaining to plant nutrition, growth, fertilization, and other functional processes. In short, the courses not only attempt to thoroughly ground the student in the principles underlying plant life, but at the same time to give him such a training as will enable him to grasp more firmly the great world problems of today, since the struggle for existence on the part of plants and their gradual evolution, typify the movements of human races and nations in all ages.

1. **Ecology.** That study of plants which directs our attention to their life relations. Plants hold definite relations to a multitude of factors outside of themselves, as light, heat, moisture, soil and wind. In this phase of the study of plants many of the most important problems of plant life are brought up for consideration. Not only are plants studied with reference to their relationships to each other, but also with reference to the animal life that surrounds them.

Required in the elementary courses in Agriculture, Forestry, and Domestic Science and Art; second year; second semester; two credits; two recitations.

2. **Morphology of Higher Plants.** This course embraces a study of the higher plants as to gross structure and its bearing upon the simpler physiological processes, as germination, growth, fructification, root absorption, circulation of sap, manufacture of food, pollination, and fertilization. The instruction is chiefly by means of laboratory exercises. The student dissects plants, their various organs as roots, stems, leaves, blossoms, fruits, and special parts, as tubers, rhizomes, and bulbs, and performs simple experiments in germination, growth, sap pressure, and various other of the primary plant processes.

Required in the courses in Agriculture, Forestry, and Domestic Science and Art; freshman year; second semester; three credits; one recitation; two laboratory periods.

3. **Special Morphology.** A course arranged for the student in Pharmacy with special reference to elementary taxonomy. The work is chiefly gross anatomy of flowering plants and the analysis of members of a few of the more prominent families.

Required in the course in Pharmacy; freshman year; second semester; three credits; three laboratory periods.

4. **Morphology of the Lower Plants.** The aim of this course is to give the student a general knowledge of the structure of ferns, mosses, lichens, fungi, and algae. The laboratory exercises are supplemented with lectures covering the theory of

development among these so-called lower plants. The course is particularly designed to precede Courses 5, 6, 9.

Required in the course in Forestry; freshman year; second semester; two credits; four laboratory periods.

5. **Anatomy.** This course aims to present the fundamental principles underlying plant physiology as determined by the structures of the plant itself, particularly by its various tissues. The plant is surrounded by a complex environment and to meet the requirements of a successful organization it has been compelled to develop special tissues. A study of these gives the student a clear insight into the problems that plants have to meet and how they have solved them.

Required in the courses in Agriculture, Forestry, and Domestic Science and Art; sophomore year; first semester; three credits; one recitation; two laboratory periods.

6. **Histology.** A course embracing the elements of the technique of microscopy as applied to the study of the minute structure of plants and plant products with special reference to the needs of pharmacists. Particular attention is given to a consideration of the structure of the vegetable cell, cell contents and tissues. Preliminary studies of poisonous and medicinal plants of the local flora are made with a view to later advanced work upon the micro-chemistry of foods and drugs of vegetable origin, their purity and adulteration.

Required in the course in Pharmacy; sophomore year; first semester; three credits; six laboratory periods.

7. **Taxonomy.** This course aims to provide the student with a working knowledge of the various families of plants characteristic of the coast region. Laboratory and field exercises constitute the chief part of the work. The field work includes the collecting, curing, mounting, and preserving of specimens. Lectures will consider distribution, poisonous, medicinal and general economic plants.

Elective; second semester; three credits; three laboratory periods.

Prerequisite: Course 2.

8. **Mycology.** This course considers the lower plants from the standpoint of classification with especial reference to future

work in plant pathology. The field work consists in making generous collections and forming herbaria of algae, fungi, lichens, liverworts, mosses, and ferns, together with a study of the environments of these plants. The laboratory work includes methods and technique in the study of detail structure, supplemented with collateral reading.

Required in the course in Forestry; junior year; first semester; two credits; two laboratory periods.

9. **Physiology.** This course is designed to fit the student to take up the subjects of pathology and plant breeding, and to this end considers in detail the metabolic processes of the plant. The laboratory exercises include determinations in respiration, assimilation, translocation, absorption, transpiration, digestion, photosynthesis, growth, tone, stimulation, and sensation. The text discussions cover the most recent views relative to the various plant processes.

Required in the course in Forestry; sophomore year; second semester; two credits; two laboratory periods.

10. **Phyto-geography.** A course of lectures and collateral reading, covering the subject of plant geography, as to regions, zones, and areas, and the causes and conditions conducive to such distribution and formations.

Elective; first semester; two credits; two lectures, and recitations.

Prerequisite: Course 1.

11. **Plant Products.** Economic plants and their various preparations and uses. History, development, and distribution of the plants that furnish the world with its chief supply of material for food, shelter, clothing, fuel, medicine, and the arts.

Elective; second semester; three credits; three lectures and recitations.

12. **Plant Evolution.** This course traces the development of plants through the various periods of their existence as plastic organisms yielding to the world changes ever in progress; as factors in the world building processes, and as organisms from which may be drawn lessons as to the significance of the increased complexity in world activities.

Elective; first semester; hours and credits subject to arrangements.

13. **The Plant Cell.** A laboratory course in the study of simple plant structures, as the cell, its form, structure, contents. Simple plant and cell functionings will be given considerable attention.

Required in the course in Domestic Science and Art; second year; first semester; two credits; two laboratory periods.

PHYSICS.

Dr. Weniger.

Physics forms the basis of a great amount of scientific work and investigation. The study of elementary physics is therefore a requisite in all engineering courses, not only on account of the basic principles taught, but also for general training in accuracy of observation, deftness of manipulation, and power of reasoning.

1. **Physics.** A course in which the first principles of physics are taught to students just beginning plane geometry. This course is intended for students in the elementary course in Mechanic Arts who may not be able to take the broader course offered to students in the degree courses. It includes recitations and laboratory work covering the topics of properties of matter, mechanics, sound, heat, light, electricity and magnetism.

Required in the elementary course in Mechanic Arts; second year; first semester; three credits; two recitations; one laboratory period.

2. **Physics.** A continuation of Course 1, devoted more particularly to electricity and magnetism.

Required in the elementary course in Mechanic Arts; second year; second semester; three credits; two recitations; one laboratory period.

Prerequisite: Physics 1.

3. **Physics.** While this course does not require a prerequisite in physics, it is a broader and more advanced course

than the preceding. It naturally covers the topics of matter, motion, force, and the laws governing the same, as well as sound, light, heat, electricity and magnetism. The laboratory exercises are more quantitative in character, and the foundation laid is particularly desirable as a basis for subsequent work in engineering and other scientific pursuits.

Required in the courses in Engineering, Commerce, Pharmacy and Forestry; sophomore year; first semester; four credits; two recitations and two laboratory periods.

Prerequisite: Plane Trigonometry.

4. **Physics.** A continuation of Course 3 during the second semester.

Required in the courses in Engineering and Forestry; sophomore year; second semester; four credits; two recitations and two laboratory periods.

Prerequisite: Physics 3.

MATHEMATICS.

Professor Johnson.
Mr. Tartar.
Mr. Beard.
Mr.Beaty.
Mr. Caceres.

The purpose of this department primarily is to give the student a thorough working knowledge of those branches of mathematics which are the foundation of a successful pursuit of the various Engineering courses, and to strengthen and discipline his mind for such other branches of study as the distinctive aims of the institution demand.

That the student may develop the faculty of reasoning logically, acquire facility in expression, and cultivate neat and orderly arrangement of work, thoroughness and accuracy are insisted upon at all times. Practical problems are assigned and discussed in the class room. Rigorous proofs of principles and theorems are required, and demonstrations, both written and oral, are freely criticised and discussed.

1. **Arithmetic.** This course consists of a thorough treatment of elementary arithmetic, including common and decimal fractions, measurements, and like subjects.

Required of students conditioned in arithmetic who are otherwise eligible to enter the first year of the elementary courses; first semester; three credits; three recitations.

2. **Algebra.** The work of the course includes a drill in the fundamental operations, use of parenthesis, special rules of multiplication and division, factoring, highest common factor, lowest common multiple, and fractions.

Required in the elementary courses; first year; first semester; five credits; five recitations.

3. **Algebra.** The topics studied include solution of fractional and literal equations, problems involving linear equations, simultaneous linear equations involving two or more unknown numbers, problems involving simultaneous linear equations, graphical representation, inequalities, involution, evolution, theory of exponents, radical expressions, and imaginary numbers.

Required in the elementary courses; first year; second semester; five credits; five recitations.

4. **Algebra.** After a short review of the topics which precede quadratic equations, the following subjects are carefully treated: Quadratic equations, problems involving quadratic equations with one unknown number, equations in the quadratic form, theory of quadratic equations, factoring of quadratic expressions, solution of quadratic equations by factoring, graphical representation of quadratic expressions with one unknown number, simultaneous quadratic equations, problems involving simultaneous quadratic equations with two unknown numbers, and graphical representation of simultaneous quadratic equations.

Required in the elementary courses; second year; first three-fifths of first semester; three credits; five recitations.

5 and 6. **College Algebra.** After a brief review of radical expressions, theory of indices and quadratic equations, the following subjects are studied: Graphical representation, mathematical induction, binomial theorem, progressions, permutations and combinations, complex numbers, theory of equations, determinants, partial fractions, logarithms, continued fractions, and scales of notation.

Required in all Engineering courses; freshman year; first semester; two credits; two recitations; second semester; five credits; five recitations.

7 and 8. **Plane and Solid Geometry.** The work includes all that is found in Shutts' Plane and Solid Geometry. The constant aim is to develop in the student the power of logical reasoning, and of clearness and accuracy of expression. To this end many original exercises are studied, and at all times demonstrations and proofs are freely discussed in the class room.

Required in the elementary courses; second year; last two-fifths of first semester and all of second semester; two and five credits respectively; five recitations.

8 and 9. **Plane and Solid Geometry.** These courses differ from 4 and 5 in that less time is devoted to solid geometry and more time is given to the study of original exercises.

Required in the courses in Commerce and Domestic Science and Art; first year; last two-fifths of first semester and all of second semester; two and five credits respectively; five recitations. Students in Commerce take Mathematics 14 for the first three-fifths of this semester.

10. **Plane Trigonometry.** This course includes functions of acute angles, right triangles, functions of any angle, relations between functions, inverse functions, trigonometric equations, and oblique triangles. Considerable time is devoted to the deduction of trigonometric formulae, study of trigonometric identities, and the solution of practical problems.

Required in all degree courses; freshman year; first semester; three credits; three recitations.

11. **Plane and Analytic Geometry.** The topics studied are the point, the straight line, polar coordinates, transformation of coordinates, the circle, conic sections, tangents, diameter,

poles and polars, discussion of general equations of the second degree, problems in loci, and higher plane curves.

Required in all Engineering courses; sophomore year; first three-fifths of first semester; three credits; five recitations.

12. **Differential Calculus.** Among the subjects presented are: Differentiation and applications, evaluation of indeterminate forms, expansion of functions, Taylor's and Maclaurin's theorems maxima and minima, points of inflection, curvature, change of independent variable, functions of two or more variables, asymptotes, curve tracing, etc.

Required in all Engineering courses; sophomore year; last two-fifths of first semester; two credits; five recitations.

13. **Integral Calculus.** Among the topics considered are: Direct integration, definite integrals and applications, integration of rational fractions, integration by rationalization, integration by parts, integration of trigonometric forms, etc.; applications to finding the lengths and areas of curves, surfaces, and volumes of solids of revolution, etc.; double and triple integration and applications. In this course, as in Course 8, great stress is laid upon practical applications, and a large number of practical problems are solved.

Required in all Engineering courses; sophomore year; second semester; five credits; five recitations.

14. **Spherical Trigonometry.** Required in the course in Civil Engineering; freshman year; first semester; one credit; one recitation.

15. **Commercial Arthmetic.** A thorough review of all the essential operations. Special stress is laid on short methods; daily drills in rapid calculation; construction of labor saving tables; computation of estimates, partnership settlements, average, etc.

Required in the course in Commerce; first year; second semester; five credits; five recitations.

16. **Mathematics of Economics and Statistics.** (a) Mathematics. A review of the progressions and series; practical applications of series and logarithms to economic problems; interest, annuities, sinking funds, insurance; a study of the mechan-

ical principles involved in actuarial science, with practice in the computation and use of tables.

(b) Theory of Statistics. The course includes a discussion of the general method of statistical investigation, application of averages to tabulation, graphic methods of deducting the law of error, interpolation, and the application of the theory of probability to statistics.

(c) Practical Statistics. A problem course in which the applications of the principles developed in (b) are made to specific problems in economics, insurance, etc.

Required in the course in Commerce; junior year; second semester; five credits; five recitations.

ENGLISH LANGUAGE AND LITERATURE.

Professor Berchtold.
Assistant Professor Callahan.
Mr. Baldwin.
Mr. Hetzel.
Miss Williams.

The objective points toward which all efforts in the study of English tend are: The study of English as a means of communication between man and man; the study of English as literature; and the study of English as language.

A cursory glance at this division might suggest the first part as the all important point, i. e., the study of English in its full scope as a means of expression with the pen and the lips. Experience has taught, however, that students of English who wish to become well grounded in the knowledge and use of their mother-tongue can not safely neglect either one of these points. For he who studies the art of composition will be greatly helped in his work if he knows the exact meaning of the words and is familiar with the classics of his native tongue.

Knowledge of the principles of the art of composition as applied by the best writers will assist the student to avoid his own crudities and will enable him to communicate what he has to say in a better form than he would otherwise employ. By the shortcomings of others he should learn what to guard against, and by their achievements what to seek in his own compositions, be these simple daily or weekly letters to friends or parents, or be they themes, essays, orations, dissertations or contributions to current thought.

What his textbook helps him to do consciously, familiarity with superior writers should help him to do unconsciously; for we may get good from a master of English by unconscious absorption, just as we acquire good manners by associating with gentlemen and ladies. No mind can fail to be stimulated by contact with greater minds, whether living or dead. Their pages feed the powers of thought and strengthen the power of expression, thus enabling the student to think, to talk and to write to more purpose.

The college graduate of today, when taking his place in the arena of the world, is expected to have, and usually has, thoughts and opinions of his own. To render these ideas of use to his fellowmen, and thus to himself, he must be able to give them adequate expression. This the study of Grammar, Rhetoric, Forensics, Oratory, and Literature will help him to do, as all of these branches call for close and accurate observation, correct inference, and sharp discrimination.

1. **Advanced Grammar.** This is a course in preparatory English, designed to secure accuracy and freedom in expression. There is work in spelling, writing, and simple grammatical constructions. Written exercises prepared under rules of form are constantly required, to obtain practice and secure confidence in expression. There is daily drill in sentence construction and sentence analysis, and there is constant practice in the application of the principles of punctuation and capitalization. Throughout this course, and also in all others, it is required that every sentence, whether spoken or written, shall be a good English sentence at all points.

Required in the elementary courses; first year; three credits; three recitations a week throughout the year.

2 **Reading and Classics.** The aim of this elementary course is to teach the pupil to interpret and memorize good literature;

to overcome defects of speech and posture; and to express his own thoughts clearly and without embarrassment. Training is given in the delivery of masterpieces of poetry and prose. Only the best literature is studied, selections being made from Tennyson, Macaulay, Scott, Dickens, Longfellow, Bryant and others.

Required in the elementary courses; two credits; two recitations a week throughout the year.

3. **Rhetoric and Composition.** A continuation of Course 1. A review of the principles of grammar; exercises in grammatical analysis; study of etymology and synonyms; analysis and outlines of specimens of easy classic prose and poetry with a view to illustrating theme structure; practice in paragraph writing and in composing short themes in the narrative and descriptive forms.

Required in the elementary courses; second year; three credits; two recitations a week throughout the year; collateral reading, one period.

4. **Advanced Classics and Reading.** Principles of literary criticism; advanced interpretative study of literary classics; analysis and rendering.

Required in all degree courses; freshman year; two credits; two recitations.

5 **Rhetoric.** Study of the elements and principles involved in effective discourse. The study of words; the sentence; the paragraph; descriptive, narrative. and expository forms of composition with written exercises in each. Careful attention to making plans and outlines Descriptions and narrations written on demand in class under limit. Personal conferences with the instructor on all written work are an important part of the course.

Required in all degree courses; freshman year; first semester; three credits; three recitations.

Prerequisites: English 1, 3.

6. **Advanced Rhetoric.** Study and practice in expository writing in class; drill in careful. orderly arrangement of material; outlines of plans, introductions, conclusions; study of effective paragraphings; importance of color and action; illus-

tration and exemplification; bi-weekly and monthly themes with personal conferences.

Required in all degree courses; freshman year; second semester; three credits; three recitations.

7. **Exposition and Argumentation.** A continuation of Course 6, with principal emphasis on Argument. Reading and analysis of forensic masterpieces preparatory to practical work in debate in junior and senior years. Drill in principles of definition, restriction and exclusion; study of value of evidence and proof as support of a proposition; recognition of the difference between assertion and argument; the relation of main and subordinate support to a proposition; difference between inductive and deductive proof; exposition continued.

Required in the Domestic Science and Art Course; sophomore year; first semester; three credits; three recitations.

8. **The Essay,** perhaps the most instructive, helpful and profitable of the forms of discourse. A careful study of the works of the masters of this difficult form: Emerson, Lowell, Stedman, DeQuincey, Macaulay, Matthew Arnold, and Ruskin; study of the paragraph; occasional written exercises, with essays as guides, to acquire correctness and facility of expression.

Required in the course in Domestic Science and Art; sophomore year; second semester; three credits; three recitations.

9. **The English Drama.** The most powerful and spontaneous of the forms of literature; use of the conversational method for the purpose of fostering the initiative in the student; study of traits of character and making of abstracts, outlines and analyses; largely a study of the plays of Shakespeare, coupled, however, with a survey of the English drama before his time.

Elective; junior or senior years; first semester; three credits; two recitations; collateral reading, one period.

10. **American Literature.** A study of the leading periods and principal writers of our country with particular emphasis on what is sometimes called the First National Period. representing such authors as Irving, Cooper, Bryant, Poe, Hawthorne, Longfellow, and Holmes; also prominent writers of the present day; lectures, class room study and reading.

Elective; junior or senior years; second semester; three credits; two recitations; collateral reading, one period.

11. **The Composition of Public Addresses.** This course deals with the composition of the most important kinds of public addresses, including the argument, the eulogy, the commemorative address, and other forms. The work consists of lectures; a study of text books; analyses of masterpieces; practice in the composition of the various forms; frequent class room exercises; five long themes during the year, and personal consultation.

Required in all degree courses; junior year; first semester; one credit; one recitation.

12. **Argumentative Themes.** This course is devoted principally to training in analysis; brief drawing; evidence; refutation; study of the principles of conviction; persuasion; and rhetorical presentation. This course is fundamental in public speaking, and is recommended to students who desire to become proficient speakers.

Required in all degree courses; junior year; second semester; one credit; one recitation.

13. **Oratorical Themes and Delivery.** This course is intended as special preparation for those who wish to enter oratorical work. The work consists of lectures on the theory of oratory; the preparation of original orations; class room exercises; personal conferences and criticism. At least three orations are required during the first semester.

Required in all degree courses; senior year; first semester; one credit; one recitation.

14. **Expression and Style.** The work of this course is devoted principally to the study of the principles of oral expression for the cultivation of a natural and direct style. Prepares students for participation in college oratory and debating.

Required in all degree courses; senior year; second semester; one credit; one recitation.

15. **Practical Public Speaking.** Daily practice in the presentation of the various forms of public address, voice training, study of gesture, bearing, and the elements of ease, grace, and force in presentation. Practice in rapid preparation of speeches

on the topics of the day, and in the impromptu delivery of the same. Designed for those who wish some general training in public speaking.

Elective; throughout the year; five credits; five recitations.

PHYSIOGRAPHY.

1 **Physiography.** This course includes a study of the general principles of Physiography, including earth movements, general elevation and depression of land areas, rock disintegration, origin and nature of drainage systems, life history of rivers, and origin of surface features and causes which have produced them. It also includes a study of meteorology and climatology.

PSYCHOLOGY.

1. **General Psychology.** A study by lectures, recitations, and demonstrations of the general facts and laws of mental activity. The subject is approached from its physiological aspect. Special attention is given to habit and its relation to character formation.

Students who have not taken Zoology IV and V will be expectsd to find extra time for demonstrations of the structure of the nervous system and the sense organs.

Elective, junior and senior year; second semester, three credits; three recitations.

MODERN LANGUAGES.

Professor Taillandier.
Mr. Caceres.

The instruction in Modern Languages covers a three-year course in French and German and a two-year course in Spanish. A knowledge of French or German is a business possession of undoubted value to any young man or woman, and the ability to speak and understand Spanish is of absolute necessity for any student who is preparing himself to do work in our Spanish speaking possessions.

The first two years in either German or French are intended to prepare the student for the reading of scientific texts, to enable him to translate understandingly and with ease any scientific work which he may wish to read in the execution of his profession; the third year is entirely devoted to the reading of such texts.

In Spanish the aim is to teach students the use of the living language, not merely to read, but to understand and speak it, with a view of possible work in Mexico, Cuba, or the Philippines. For this reason it is especially recommended to Engineering students.

Considerable attention is given to conversation and matters of business. Commercial correspondence and other useful topics are introduced during the second year.

The following courses are offered:

1 and 2. **French.** Chardenal's Complete French Course; drill in grammar; exercises in easy prose composition. Aldrich & Foster's French Reader, selected prose works by modern writers, such as Labiche, Enault, Daudet, Bazin.

Required as an elective with either German or Spanish throughout the sophomore year in all degree courses excepting the courses in Mining, and Civil Engineering; four credits; four recitations.

3 and 4. **French.** Buell's French Daily Life. Composition and readings by modern French writers. such as Scribe, Dumas, Sand, Merimee, Balzac, Hugo. Fraser and Squair's French Grammar.

Required as an elective with either German or Spanish throughout the junior year in all degree courses excepting the courses in Mining, and Civil Engineering; four credits; four recitations.

5 and 6. **French.** Reading of scientific texts. Davies' Elementary Scientific French; Bowen's Scientific French Reader; Lucquiens' Popular Science.

Required in the course in Forestry; senior year, as an elective with German; four credits; four recitations.

7 and 8. **German.** A short outline of the complete grammar, including irregular verbs; translation of easy texts and

exercises in easy prose compositions. Collar-Eysenbach's German Grammar, Mueller and Wenckebach's Glueck Auf, Huss' German Reader.

Required as an elective with either French or Spanish, throughout the sophomore year in all degree courses, excepting the courses in Civil, and Mining Engineering; four credits; four recitations.

9 and 10. **German.** Constant review of the grammar and syntax; exercises in composition and the requirement of a larger vocabulary. Bronson's Colloquial German, Mosher's Willkomen in Deutschland, Kron's German Daily Life, and selected prose works of modern writers.

Required as an elective with either French or Spanish throughout the junior year in all degree courses, excepting the courses in Civil, and Mining Engineering; four credits; four recitations.

11 and 12. **German.** Reading of scientific texts. Lassar-Cohn Die Chemie in Taglichen Leben; Walter's Meereskumde; Day and Brandt's Scientific Reader.

Required in the course in Forestry, senior year, as an elective with French; four credits; four recitations.

13 and 14. **Spanish.** Loiseaux's Elementary Spanish Grammar. Worman's First and Second Spanish books. Conversation and Composition. Bransby's Spanish Reader. Alarcon's Novelas Cortas Escogidas.

Required as an elective with either German or French throughout the sophomore year in all degree courses excepting the courses in Mining, and Civil Engineering; four credits; four recitations.

15 and 16. **Spanish.** Modern Spanish Syntax, Ramsey's Spanish Grammar; Spanish composition to include Spanish letter writing. Conversation and reading texts by Moratin, Morilla, Valdes.

Required as an elective with either German or French throughout the junior year in all degree courses; four credits; four recitations.

LATIN.

Miss Gatch.

1 and 2. **Elementary.** These courses give attention throughout the year to the etymology of English derivatives, cognates, irregular verbs, subjunctive mode and readings.

Required in the courses in Pharmacy, freshman year, Commerce and Domestic Science and Art, sophomore year; both semesters; four credits in Pharmacy, five in the other courses; four and five recitations respectively.

3. **Grammar.** A thorough course in the principles of construction, together with advanced readings.

Elective; first semester; five credits; five recitations.

Prerequisites: Courses 1, 2.

4. **Caesar.** Selections from "Caesar's Gallic War."

Elective; second semester; five credits; five recitations.

Prerequisites: Courses 1 to 3 inclusive or an equivalent.

5. **Virgil.** Selections from Virgil's Aeneid, Books I, II, III.

Elective; first semester; five credits; five recitations.

Prerequisites: Courses 1 to 4 inclusive or an equivalent.

6. **Horace.** This course completes Virgil's Aeneid and considers selections from Horace.

Elective; second semester; five credits; five recitations.

Prerequisites: Courses 1 to 5 inclusive or an equivalent.

HISTORY.

Professor Horner.
Miss Gatch.

1. **Ancient History.** A survey of the ancient eastern nations, with a careful study of Greece and Rome.

Required in the elementary courses; first year; first semester; three credits; three recitations.

2. **Mediaeval and Modern History.** A study of the social and political institutions of Europe, with discussions touching

the material progress of these ages; famous works of art; foundations, inventions, discoveries, enterprises, improvements, and investigations.

Required in the elementary courses; first year; second semester; three credits; three recitations.

3. **Modern History.** Special attention given to the English constitutional and colonial history.

Required in the courses in Commerce and Domestic Science and Art; freshman year; first semester; three credits; three recitations.

4. **United States History.** With special attention to the colonial, political and industrial aspects.

Required in the courses in Commerce and Domestic Science and Art; freshman year; second semester; three credits; three recitations.

5. **English History.** An outline of political and constitutional history to serve as a frame work for the study of the economic, social, and intellectual development of the nation.

Required in the courses in Commerce and Domestic Science and Art; sophomore year; second semester; three credits; three recitations.

ART.

Assistant Professor McLouth.

The chief aim of the course in drawing is to teach the student to see truly, to obtain quicker perceptions, and to develop a keenness of observation, accurate judgment, and concentration of the mind. Few among us see truly what we see, and then only what we have been educated to see. Besides the general quickening of perception and the training of the eye to accurate sight, it affords the means of noting the forms of objects such as no written description can secure. It is a mode of expression second only to language itself.

In considering the study of drawing, its importance is too often lost sight of, and yet it may be safely said that drawing is a corner stone in the foundation of not only industrial education, but of a scientific education as well. In engineering courses, for instance, a knowledge of drawing is one of the first requirements. Drawing is an invaluable element in general education as a handmaid to the other branches of study, and the foremost educators advocate the study of drawing as the first step in any system of industrial education.

1. **Elementary Drawing.** The purpose of this course is to teach the student to see correctly, to give him enough general knowledge of drawing to make it an aid in the pursuance of other branches where graphic representation is an important feature of the work; and to give him such a training as will best and most fully meet the needs of the subsequent work.

The course consists of the principles of drawing, elementary perspective, and its application. Drawing in charcoal from geometric forms and block casts. Much attention will be given to exactness of outline because in laboratory drawing, such as in Botany and Zoology, true outline is of greatest importance.

Required in the elementary courses and as an entrance requirement to all of the degree courses; first year; both semesters; two credits; four laboratory periods.

2. **Machine Sketching and Assembly Drawing.** This course is continued throughout the second semester, but is divided and designed to meet the requirements of the several courses. A considerable proportion of the time is given to machine sketching to acquaint the student with the method of securing and retaining data for complete working drawings by the aid of sketches; making and reading working drawings, detailing complicated parts; orthographic projection, and lettering. The conventions of practice and the method of making clear, accurately dimensioned sketches for working drawings is given first consideration. In machine sketching the objects from which the sketches are made are selected from approved designs of commercial machinery and electrical apparatus to give familiarity with correct forms. Students in Civil Engineering devote much time to freehand lettering.

Required in the course in Mechanic Arts and as an entrance requirement to all degree courses in Engineering; second year; two credits; four laboratory periods.

2a. **Scientific Drawing and Design** is designed for students in Agriculture, Forestry, Domestic Science and Art, Pharmacy, and Commerce, to further carry out the aims of Course 1, but instead of drawing in charcoal from geometric forms and block casts, more complicated drawings are made, the work being in pencil from plant and insect specimens. Students in the course in Domestic Science and Art will give special attention to flowers and foliage with a view to design. One hour each week will be given to elementary design. Each student will prepare a number of patterns or designs suitable for application to the materials most available for house decorations and beautifying the home. These designs will include patterns for table coverings, lunch cloths, cushion covers, portieres, screens. Some work will also be given in light and shade, judging areas and values.

Required in the Elementary courses in Agriculture, Forestry, Domestic Science and Art, and as an entrance requirement to all degree courses.

3. **Title Designing and Freehand Lettering.** This course is specially designed for students in Civil Engineering, and will consist of freehand lettering (the construction of Roman and Gothic letters and spacing), design of lines and titles (the single line titles, the choice of style and size of letters, how to lay out and execute the design), and tinting.

Required in the course in Civil Engineering; first year; first semester; two credits; four laboratory periods.

4. **Advanced Drawing.** This course includes advanced work in charcoal, pencil, and wash from the antique still life and from life.

Elective; first semester; three credits; three laboratory periods.

Prerequisites: Courses 1, 2.

5. **Color Harmony.** Working in pastel, water color, and oil from still life and from life.

Elective; second semester; three credits; three laboratory periods.

Prerequisites: Courses 1 to 4.

PHYSICAL EDUCATION.

Professor Angell.
Mr. Heater.
Miss Williams.

It is the purpose of the Department of Physical Education to furnish students ample opportunity for physical development. The ill effects of the sedentary life of students may be counterbalanced by activity in the gymnasium and on the athletic field.

All Freshmen are required to take two periods of exercise each week throughout the college year. Before being assigned to a class each student will be given a thorough physical examination. The more important measurements will be taken, and the condition of the vital organs noted. Advice will be given as to the best exercise to be used in securing a symmetrical development. Students below normal in health and muscular strength will receive special attention and consideration.

COURSES FOR MEN.

1. **Preliminary Course.** This course consists chiefly of outdoor exercises, as cross-country running, golf, baseball, cricket, tennis, football, and other games.

Freshman year; two-thirds first semester; two-thirds credit; two laboratory periods.

2. **Elementary Course.** Calisthenics and light apparatus drills; class-work on the horse, parallel, and horizontal bars, rings, and similar apparatus; recreative games; basketball, indoor baseball, and similar sports.

Freshman year; last third of first semester and first third of second semester; two-thirds credit; two laboratory periods.

3. **Advanced Course.** Track and field athletics, baseball, tennis, cross-country running, physical tests.

Freshman year; two-thirds second semester; two-thirds credit; two laboratory periods.

4. **Normal Course.** Many students expect to take up the profession of teaching after graduation from college. A general knowledge of the theories of physical education and methods of gymnastic and athletic instruction is often of material assistance in securing important teaching positions.

Students showing an especial aptitude and interest in physical education will be admitted to this course. The work will include lectures on the history and development of physical training, the general physiological principles of exercises, methods of teaching, and first aid to the injured. Calisthenics, gymnastic drills, apparatus work, games, and athletics, will comprise the practical work of the course.

Elective; hours and credits subject to arrangement.

Courses for Women.

All women of the College, unless physically unable, are required to take at least two years' work in physical training. The classes meet daily for one period of fifty minutes.

This course is planned for consecutively progressive work, and consists of systematic exercises for the development of all parts of the body. The purpose of the course is to develop a strong and symmetrical physique, with a graceful and easy carriage; to correct physical defects and deficiency in nervous control, and to insure the individual, health and organic vigor.

The large and well-equipped gymnasium is admirably suited for the regular class work. In addition to this, various games and pastimes, such as tennis, and basket ball, are open to all young women of the College. The course is designed to be recreative as well as educational, and the cultivation of the play instinct is emphasized as an important factor in physical training.

Women pursuing this course are required to provide themselves with a gymnasium suit, consisting of a blouse waist and bloomers, with the regulation gymnasium shoes.

A physical examination is made of each student and physical measurements are taken in the fall and again in the spring.

1. **Elementary Course.** Free developing exercises for poise, presence, and bearing, for the vital organs, for respiration; light apparatus work; Indian clubs, dumb-bells, wands, gymnastic tactics; military and fancy marching; harmonic movements; gymnastic games.

2. **Advanced Course.** Difficult free movements from Swedish and German systems; apparatus work, including Swedish stall bars, parallel bars, ladders, flying rings, traveling rings, vaulting bar and horse; marching, running, jumping, single stick; artistic gymnastics; Gilbert work and folk dances.

MILITARY SCIENCE AND TACTICS.

Captain McAlexander.

"Whatever arguments may be drawn from particular examples, superficially viewed, a thorough examination of the subject will evince that the art of war is both comprehensive and complicated; that it demands much previous study, and that the possession of it in its most approved and perfect state is always of great moment to the security of a nation."—Washington's last annual message.

"In the same measure as we are prepared to enforce them, will our demands upon other nations receive consideration."—President Theodore Roosevelt.

The military body of this College consists of one regiment of infantry having three battalions of four companies each, and a band of thirty-five instruments; the drill and administration are the same as in the Regular Army.

One of the objects of this instruction is to prepare the cadet so that upon graduation he will be thoroughly competent to hold a commission in the National Guard or volunteer army.

The greater part of the instruction is directed toward having cadets adopt a systematic rule of conduct, inculcating accurate methods in everything they undertake. This not only places cadets in the condition to receive favorably all instruction in the military department, but facilitates study in the other departments, and becomes a valuable asset to a young man going out into the world in any profession.

Military drill improves the habits and manners of the student, develops him physically, and gives him that military knowledge which it is desirable every citizen should possess that he may render intelligent aid to his country or state in the time of need. It cultivates a manly spirit, ready and implicit obedience, respect for authority and self-restraint—all qualities of inestimable value to a young man.

Instruction in the course is prescribed for all undergraduate male students. Students physically unable to bear arms are excused from active military drill, but will be assigned some light duty by the head of the department. The instruction is both practical and theoretical.

The present armory contains a drill room 70x100 feet in extent, six offices, and suitable rooms for storing guns and other ordnance.

Four hundred eighty modern U. S. magazine rifles (Krag-Jorgensen) and equipment have recently been obtained. Other necessary accoutrements and apparatus for the thorough equipment of the military department are furnished by the College.

Appointment and promotion of officers and non-commissioned officers, and their relative rank in each grade, are determined according to the military standing of the cadets, based upon a careful consideration of the following points: Knowledge of drill and other duties as determined by examination, practical application of this knowledge on the drill field, and recommendations of superior officers; zeal, soldierly bearing, and aptitude for command; character; military record; general standing in College.

Commissioned officers are selected from the senior class or such as have had three or more years of drill; non-commissioned officers from the junior and sophomore classes; all reductions are to the grade of private. All appointments and promotions are made by the Commandant with the approval of the President of the College.

Drill. Freshman, sophomore, junior and senior years. The practical course in Infantry includes the schools of the soldier, company and battalion, in close and extended order; evolutions of the regiment; ceremonies; guard, and outpost duty; target practice and battle tactics.

Paragraph 20, General Orders No. 155, War Department, July 24, 1907, directs that "Upon occasions of Military Ceremony, in the execution of drills, guard duty, and when students are receiving any other practical military instruction, they shall appear in the uniform prescribed by the institution. They shall be held strictly accountable for the arms and accoutrements issued to them."

The wearing of mixed civilian and uniform clothing is prohibited at all times. The uniform complete, costs about $16.00, and is of the regulation olive drab color adopted by the United States Army, and makes a very neat and serviceable suit.

Students must come prepared to deposit the price of the uniform, for which they will be measured as soon as they learn the position of a soldier.

Proficiency in the military department is a requisite to graduation.

Theoretical Instruction. One recitation or lecture each week during the junior and senior years. This instruction consists of recitations in Infantry, Drill Regulations, Field Service Regulations, and Army Regulations; instruction in military correspondence and reports and returns; lectures on military subjects that pertain to the organization and administration of the United States military forces in peace and in war.

The Brodie Banner, is a richly decorated silken banner that may be carried by the best drilled company as a mark of merit. Each year it goes to the company making the highest total number of credits in competitive drill. Company M carries the honor for 1908-09.

ROSTER.

Field and Staff.

Colonel	R. K. Brodie
Lieutenant-Colonel	H. E. Cooke
Captain and Adjutant	W. H. Davolt
Captain and Q. M.	B. L. Cunningham
Captain and Com	R. I. Thompsou
First Lieut., Instructor in First Aid	F. L. Griffin

Non-Commissioned Staff.

Sergeant-Major	E. B. Williamson
Q. M. Sergeant	W. R. Waggoner
Commissary Serg	R. V. Williamson
Color Sergeant	R. B. Doane
Color Sergeant	A. E. Stovall
Chief Trumpeter	N. E. Chapin

Band.

Leader	H. L. Beard	Sergeant	C. W. Johnson
Drum Major	R. E. Bower	Sergeant	C. A. Watts
Chief Musician	R. E. Wills	Sergeant	J. R. Luper
Principal Musician	O. K. Cole	Corporal	F. McGinnis
Sergeant	E. A. Hudson	Corporal	S. F. Holm

First Battalion.

Major	S. A. Brown	Sergeant Major	M. Struve
First Lieut. and Adj.	E. S. Thayer	Clerk	R. A. Miller
Second Lieut., Q. M., Com.	R. S. Milln		

	Company A.	Company B.
Captain	W. E. Wood	C. T. Parker
First Lieutenant	C. J. Currin	F. N. Fox
Second Lieutenant		P. A. Lockwood
First Sergeant	E. C. Buchanan	R. R. Clark
Quartermaster Sergeant	F. E. Hall	C. I. Barnes
Sergeant	J. Koeber	G. A. Cross
Sergeant	B. J. Groth	M. J. Lazelle
Sergeant	C. Schrack	L. C. Rulifson
Corporal	F. E. Ewart	M. A. McCall
Corporal	J. W. Skibbe	J. E. Hiatt
Corporal		E. A. Olson
Corporal		E. C. Carol

	Company C.	Company D.
Captain	C. B. Sprague	R. E. Reynolds
First Lieutenant	A. Anderson	R. Wall
Second Lieutenant		H. C. Leonard
First Sergeant	A. K. Chapman	T. J. Autzen
Quartermaster Sergeant	R. C. Gleason	W. D. Sutton
Sergeant	R. Neal	G. Benshadler
Sergeant	R. C. True	C. Benshadler
Sergeant		
Corporal	I. Province	W. C. Crews
Corporal	J. C. Plankington	J. J. Kettles
Corporal	J. M. Reynolds	J. J. Thompson
Corporal	P. B. Hawley	W. D. Winniford

Second Battalion.

Major	E. P. W. Harding	Sergeant Major	J. W. Howard
First Lieut. and Adj.	C. E. Williamson	Clerk	P. H. Fisher

	Company E.	Company F.
Captain	C. O. Davolt	E. R. Woods
First Lieutenant	F. Kerr	J. D. Paul
Second Lieutenant	E. W. Wallace	T. R. Sleight
First Sergeant	J. A. Tiffany	S. B. Hall
Quartermaster Sergeant	N. T. Smith	C. S. Harris
Sergeant	A. B. Smith	J. E. Edwards
Sergeant	H. G. Suttle	R. A. McCully
Sergeant	E. R. Crowe	K. W. Farnsworth
Corporal	R. B. Hamilton	H. G. Benson
Corporal	W. Hensley	F. S. Michelbrook
Corporal	H. B. Looney	I. D. Winderly
Corporal	B. L. Clark	W. C. Galloway

	Company G.	Company H.
Captain	J. E. Hanny	J. F. Winniford
First Lieutenant	J. W. Finn	C. Christiansen
Second Lieutenant	E. C. Wiggin	
First Sergeant	F. D. Luse	W. G. Lane
Quartermaster Sergeant	E. S. McElligott	J. J. Peddicord
Sergeant	H. J. Donnelly	P. C. Zimmerman
Sergeant	J. S. McMahon	H. C. Schoel
Sergeant	J. S. Gilkey	J. J. Beaty
Corporal	C. F. Galligan	L. B. Howey
Corporal	A. Collette	A. C. Calvert
Corporal	C. Metcalf	T., S. Abbott
Corporal	F. W. Wright	

Third Battalion.

Major	D. A. Wright	Sergeant Major	E. B. Hanna
First Lieut. and Adj.	L. C. McLain		

	Company I.	Company K.
Captain	D. Macmillan	C. H. Hays
First Lieutenant	F. Knaus	J. Melhase
Second Lieutenant		
First Sergeant	C. H. Stone	E. C. Callaway
Quartermaster Sergeant	G. F. Winslow	H. S. Wall
Sergeant	H. R. Zimmerman	G. A. Nelson
Sergeant	W. R. Worstell	O. Beaty
Sergeant	E. I. Nelson	R. A. Keiser
Corporal	A. M. Woodruff	N. F. McColl
Corporal	R. P. Landes	R. A. Rawson
Corporal	I. M. Morgan	A. F. Bernard
Corporal		R. L. Davidson

	Company L.	Company M.
Captain	D. W. Elrod	L. B. Chambers
First Lieutenant	C. E. Bowen	F. R. Pendergrass
Second Lieutenant		R. H. Rodgers
First Sergeant	M. R. Cox	P. H. McAlexander
Quartermaster Sergeant	P. H. Cale	W. L. Marrs
Sergeant	E. Metzger	W. R. Palmer
Sergeant	J. A. Muldrick	R. H. Sprague
Sergeant		B. B. Totten
Corporal	R. E. O'Rourke	R. H. Pierce
Corporal	C. E. Starr	R. O. Caves
Corporal	C. H. Moore	H. J. McIntosh
Corporal	L. A. Duckworth	E. J. Silva

SCHOOL OF MUSIC.

Director William Frederic Gaskins, Voice.
Instructor Genevieve Baum-Gaskins, Piano, Voice.
..............................Piano.
..............................Piano.
..............................Violin.
..............................Mandolin and Guitar.
Harry L. Beard, Band.

Accomplished musicians are always in demand as directors, singers, teachers, accompanists, and organists. Church, concert, and public school music work offer many opportunities for those qualified by nature and study.

The School of Music of the Oregon Agricultural College offers to earnest students the opportunity to acquire scholarly musicianship, at a modest expense.

Students in the School of Music have access to all classes in the several departments of the College, and to enhance their general culture are required to take at least one study throughout the school year other than the work required in the regular music courses.

The following courses of study will enable students to obtain a comprehensive and practical knowledge of music and to acquire skill and power in its interpretation. The time required for completing a course will depend upon the previous preparation, talent, ability, and character of the work of each student, but all have the privilege of advancing as rapidly as is consistent with good work. Students of the Oregon Agricultural College will be permitted to study music only with instructors connected with the School of Music.

The following courses are offered:

1. **Voice.** Exercises will be given for correct breath control; purity of tone production; freedom of action and blending of registers; articulation and correct form for enunciation of vowels and consonants; elements of phrasing and style. Stu-

dents will appear on program if required, and will attend all recitals and rehearsals unless otherwise specified.

Two lessons a week in voice; practice with instrument, one to two hours daily; sight reading and ear training two hours a week; history of music, choir and chorus practice throughout the year.

2. **Voice.** This course consists of exercises for tone placing; phrasing and style; legato, marcato and portamento delivery. Physiology of vocal mechanism, songs, and exercises of medium grade in English, German, or Italian. All students will attend recitals; and appear upon programs if required, singing from memory.

Two lessons a week in voice; practice with instrument, one to two hours daily; two lessons a week in harmony; one lesson a week in counterpoint; history of music, choir and chorus practice throughout the year.

Prerequisite: Course 1 or its equivalent.

3. **Voice.** This course is devoted to a study of tone color; agility; trill; messa di voce; recitation; declamation; phrasing, and style; songs in English, German, Italian or French. All students are required to attend recitals and rehearsals and appear upon programs when requested, singing from memory.

Two lessons a week in voice; two lessons a week in harmony and counterpoint; practice with instrument, one to three hours daily; one lesson a week in theory and composition; choir and chorus practice throughout the year. A certificate is granted those who complete this course in a satisfactory manner.

Prerequisite: Course 2 or its equivalent.

4. **Voice.** This course embraces advanced work in vocal technique by means of difficult exercises, songs, oratorios and operas; memory singing in public; all students are required to attend recitals and rehearsals and appear upon programs when requested.

Two lessons a week in voice; practice with instrument one to three hours daily; choir and chorus practice throughout the year. A gold medal will be granted those who complete this course satisfactorily.

Prerequisite: Course 3 or its equivalent.

5. **Piano.** In this course the student is required to memorize and play with correct fingering all major and both forms of minor scales, legato in quarter and eighth notes; major and minor chords in triad and four-note form; dominant seventh chord, four-note form with all inversions played with sustained arm touch, hands separately; figured chords in quarter and eighth notes; octaves and staccato octaves in any required scale; sight reading, etc.

Two lessons a week on piano; two lessons a week in harmony; practice with instrument, three to four hours daily.

6. **Piano.** The work of this course requires that the student play from memory with correct fingering, all major, minor, and chromatic scales; major and minor triads in full chords; dominant and diminished seventh chords with their inversions; broken chords played in quarter and eighth notes; arpeggios formed on the major and minor triads, metronome quarter note one hundred; staccato octaves in major scales, quarter and eighth notes; sight reading; recognition of major and minor scales, and all intervals from the tonic of the major scale.

In addition to the above, the student must have satisfactorily completed twelve weeks of music history in the regular second year class.

Two lessons a week on piano; two lessons a week in harmony; one lesson a week in counterpoint; practice with instrument, three to four hours daily.

7. **Piano.** In addition to the work of the foregoing courses the student must play from memory with correct fingering, major and minor scales, hands separately and together, beginning one octave apart, similar and contrary motion, compass four octaves, in quarter, eighth, and sixteenth notes; triplet rhythms in quarter and eighth notes; metronome quarter note 120; tempo scales studied to metronome quarter note 120-130; major and minor chords in triad, and four-note form; dominant seventh and diminished seventh chords four-note form, extended and broken with all inversions and in moderate tempo; arpeggios formed on the major and minor common chords; and be able to transpose easy hymns.

Two lessons a week on piano; two lessons a week for twenty weeks in harmony and counterpoint; practice with instrument three to five hours daily.

8. **Piano.** The technical tests in this course will be similar to those in the previous courses, except that the tempo will be increased. Exercises and scales in double thirds, fourths and sixths in parallel motion will be required to be played in quarter and eighth notes; metronome 80 to 90; sight playing and transposing; students will be required to play at sight, a composition equally as difficult as Beethoven's Sonata in A flat op. 26, and must be able to transpose and play at sight in any given key, a simple hymn or chorale. For graduation, students are required to perform publicly under the direction of the School of Music a program not less than one hour in length, which shall include two or more numbers equal in difficulty to any compositions in the list of senior pieces.

Following is the list of senior pieces of which the student must play ten numbers from memory: Wagner-Liszt—Tannhauser March; Chopin—Scherzo in B Minor, op. 31; Chopin—Fantaisie—Impromptu in C sharp minor; Beethoven Sonata op. 27, No. 2, Sonata op. 31, No. 1, Sonata op. 53 (Waldstein), Sonata op. 57 (Appassionata), Mendelssohn—Rondo Capriccioso op. 14, Prelude and Fugue in A Minor; Schumann—Faschingschwank op. 26, Kreisleriana op. 16, Carnival op. 9; MacDowell—Marzwind and Wald-Idyllen op. 19 Nos. 1, 3, and 4. Weber—Polacca Brilliante op. 72, Rondo Brilliante op. 62; Mozart—Concerto in D Minor; Fugue in A minor—Bach, or his Italian Concerto; Suite in D—Handel; Staccato Etude—Rubinstein; Caprice Espannol, op. 37—Moskowski; Concert Etude, op. 36—MacDowell; Ballade—Grieg; Liebestod (Tristan and Isolde)—Liszt; or five more at teacher's option.

Two lessons a week on piano; practice with instrument three to five hours daily.

To satisfactorily complete this course the student must fulfill the requirements above outlined, appear on programs when required, and manifest musicianship, skill and poise.

9. **Theory.** This course in Theory will comprise systematic and progressive study in the elements of music. In this, atten-

tion will be given to notation, scales, intervals, inversion, melodic progression, tempo, dynamics, rhythm and ear training. The advanced Theory will deal with harmony and counterpoint and subdivisions thereof, concluding with Form and Composition.

10. **Violin.** This course is preparatory and includes work of the following grade: Sevcik op. 6, selected parts; violin methods by Hermann, Schradieck, Gruen or some acceptable equivalent. Hermann, Bk. 2; Studies by Kayser, Mazas, solos and ensemble music of same grade.

11. **Violin.** A course of more advanced work upon completion of which the student is granted a teacher's certificate. David's violin school, selected parts. Schradieck's technical studies. Studies by Kreutzer, Fiorillo, and Rode. Standard concertos and sonatas of corresponding difficulty. Ensemble music. Harmony two years, music history one year.

12. **Violin.** This course includes the most advanced work and a satisfactory completion of it leads to graduation. Studies by Gavinies, Paginini, Bach sonatas, larger concertos of old and modern schools, solos by Vieuxtemps, Wieniawski, and Saint Saens, and works of similar difficulty. Analysis and counterpoint.

To satisfactorily complete this course the student must fulfill the requirements above outlined, appear on programs when required and manifest musicianship, skill and poise.

Guitar and Mandolin. Instruction in Guitar and Mandolin will be given at the regular rates of tuition for the violin.

13. **Band.** Instruction will be given by the regular College Band Leader in the use of brass, woodwind, and percussion instruments.

To become a member of the College Band a student must pass a satisfactory examination as to knowledge of music and ability to perform on an instrument.

The members are required to attend rehearsals every day, and a reasonable amount of individual practice is expected.

There is no charge for instruction in the band. Each member must furnish his own instrument and music stand, except basses, baritones, altos, and drums, which are furnished by the College.

Those who desire private lessons on band instruments will consult Mr. Beard.

GENERAL INFORMATION.

Lessons in all departments are of thirty minutes' duration.

Tuition for instruction is as follows:

Voice. Professor Gaskins.

Ten lessons, one a week, ten dollars; twenty lessons, two a week, seventeen dollars and fifty cents; thirty lessons, three a week, twenty-two dollars and fifty cents.

Less than ten lessons will not be given unless by special arrangement.

Piano. Voice. Instructor Gaskins.

Ten lessons, one a week, seven dollars and fifty cents; twenty lessons, two a week, fourteen dollars; for playing accompaniments, ten hours, one hour a week or divided in periods of thirty minutes each twice a week for ten weeks, ten dollars.

Piano. Instructors, ...

Ten lessons, one a week, ten dollars; twenty lessons, two a week, seventeen dollars and fifty cents; thirty lessons, three a week, twenty-two dollars and fifty cents. Less than ten lessons will not be given except by special arrangement.

Assistant......................Tuition same as for assistant in Voice

Violin. Instructor ....

Ten lessons, one a week, seven dollars and fifty cents; twenty lessons, two a week, fourteen dollars.

Band. Instructor Beard.

The same rates as for violin.

Music History.

Two hours a week; five dollars a term to regular students of the School of Music. One dollar a week for less than ten weeks to those not connected with the College.

Theory, Harmony, and Counterpoint in class lessons, two hours a week, ten dollars a term; thirty-five dollars a year of thirty-six weeks.

Rentals. Pianos for practice will be furnished students of the School of Music of the Oregon Agricultural College at the following rates:

Term of ten weeks, one hour a day, five dollars; two hours, seven dollars and fifty cents; three hours, twelve dollars; four hours, fifteen dollars; five hours, eighteen dollars.

All pianos for practice will be of good quality and kept in good condition for use, in consequence of which students of the School of Music not owning pianos will not be permitted to practice upon instruments outside of the School of Music unless by special arrangement with the Director.

This will always insure superior instruments for private use at regular periods. Students will be required to practice alone unless furnished with written permission from the Director. All music will be furnished pupils through the School of Music or the local dealers at teachers' rates, thus making it possible for the student to secure the necessary exercises, studies, songs, and pieces, at the lowest possible rates. In all but exceptional instances, music for use in the chorus and choir will be furnished free by the School of Music. It will thus be seen that it is the intention of the faculty of the School to surround each student with every encouragement for thorough and economical study.

Tuition is payable in advance monthly, or by the term, at the business office. All students connecting themselves with the School of Music thereby agree to observe its rules and requirements.

Voices will be tested free of charge by appointment with the Director.

Choir and Chorus Practice: Membership is free to qualified students of the College, and open to talented singers not connected with the institution, by payment of a nominal fee to the Financial Secretary, and acceptance of qualifications and credentials by the Director.

It is the intention to conduct at least two chorus rehearsals each week.

Several concerts will be given during the year, in which Oratorios, Operas, and mixed choruses will be sung. Whenever possible operas studied will be presented with appropriate costumes, action, and scenery.

No student is permitted to omit lessons or practice without sufficient excuse, and no deduction is made for absence from lessons or practice, or for discontinuance, except in case of illness or unavoidable absence.

Any injury to instruments, besides the normal wear and use in practice, must be paid for by the student or persons responsible therefor.

The Glee and Mandolin Clubs and Orchestras give frequent public recitals and concerts, and each has at least one rehearsal a week. Information concerning membership in these organizations may be obtained by application to the Director.

A recital is given every two weeks by members of the faculty or members of the various classes, at which every student of the School of Music is expected to be present.

WINTER SHORT COURSES.

Upon the farms and in the homes of this state are thousands of young people who are to become the farmers, gardeners, stockmen, orchardists, housekeepers and home-makers of the future. To keep pace with the rapid development in the science, art, and practice of agriculture and home-making and thus be enabled to attain the highest possible success, in these fields of endeavor, one should obtain as much special training as possible. Many of these young people, however, are so situated that it is impossible for them to attend any of the regular four-year courses in these subjects. There are also, no doubt, many mature farmers, and housewives, well past the usual school age, who desire to acquaint themselves more fully with the most recent developments in their respective lines of labor. To meet the needs of such persons, both young and old, various plans have been adopted in the several states, the most important of which are the Farmers' Institutes and the Winter Short Courses.

During the past ten years the Oregon Agricultural College has, each winter, offered a two-week course of lectures and demonstrations which has been known as the Short Course in Agriculture. During the greater portion of that time there has also been offered each year a six-week course in dairying for those who desired to obtain some knowledge of modern dairy and creamery methods. These courses have been so generally successful and have called forth so many expressions of approval from those who attended them that last year it was decided to enlarge the scope of this work, and accordingly the College now offers the following courses during the coming winter:

General Agriculture, "Farmers' Week"; Dairying; Horticulture; Mechanic Arts; Household Science.

Each of these courses, except the one in Mechanic Arts, which will consist entirely of practical work in the shops or in the draughting room, will consist of a series of lectures supplemented by demonstrations and by practical exercises in the dairy, the orchard, and the various laboratories.

The work offered will be adapted to the practical needs of farmers, fruit-growers, dairymen, mechanics, or of women in the home. It is believed, also, that teachers who desire to prepare themselves to teach the elementary agriculture which is now required in our public schools, will find these courses decidedly helpful.

The various courses are so planned as to provide the largest amount of practical information in the short time available. The subjects to be discussed are those in which every farmer should be interested, and the aim will be to present them in the most practical manner possible. The laboratories and collections, the shops, the creamery, the orchards, the college farm, the cutting, fitting and sewing rooms, the dining rooms and kitchens, all offer facilities for demonstration or for practical exercises by the students attending these courses.

Students should report to the Registrar in the administration building for registration and for assignment to the various courses. A list of boarding and lodging places may be consulted at the office of the Y. M. C. A.

There will be no charges for tuition, but each student will be required to pay a registration fee of $2.00 to cover the expense of materials used during the course. In addition dairy students will be required to make a breakage deposit of $3.00. This deposit is to cover breakage of glassware in the laboratory and in case no breakage occurs will all be returned.

No entrance examination or other educational test will be required. All who come with the desire to learn will be welcome, providing they are over sixteen years of age.

GENERAL AGRICULTURE.

The Farmers' Week, a short course in General Agriculture, will be conducted somewhat on the plan of an extended farmers' institute and will consist principally of lectures, supplemented by such demonstrations and practical exercises as are made possible by the equipment of the College and Experiment Station. The aim of the course will be to give to those in attendance the largest possible amount of information regarding the principles which underlie successful agricultural and horticultural practices. A brief outline of the various courses of lectures upon soils, plants, stock-feeding, stock-breeding, veterinary science, chemistry and bacteriology in their relation to farming, fruit-pests and spraying follows:

Feeds and Feeding will include a study of forage plants, their growth, adaptability, chemical composition and relationship to successful dairy husbandry; fundamental principles of animal nutrition, including digestion, assimilation, the composition and feeding value of the different grains and commercial feed stuffs and how they should be fed for best results in milk production.

Breeds and Breeding will embrace the study of the origin and characteristics of the leading dairy breeds, adaptability, form as related to function, and a general discussion of types. The College maintains a typical herd of dairy animals, comprising representatives of five popular breeds, thus affording the student an excellent opportunity to make comparisons. Stock judging both by the score-card system and by comparison will be a feature of this work.

Veterinary Science will consist of a general discussion of the causes of the common diseases of live stock, their treatment and best means of prevention. It will also include discussions relative to the usual management and care of the herds and flocks and individual members thereof, in health or disease.

Soils. This course will be largely a discussion of the elementary facts concerning the origin and formation of soils; the relation of soils to moisture, heat and air; common soil processes, both physical and chemical; the composition of soils and plants; the structure and resources of the soil; plant food and soil fertility; the classification of soils; the chemical and physical characteristics of the different soil types; the conservation of moisture and fertility in each; the crops and tillage; the use and care of the common tillage implements, and the benefits derived from drainage and irrigation.

Chemistry. Work in this subject will be arranged to best suit the requirements of the students taking these special winter courses. The work will consist of lectures and discussions. The lectures will be accompanied by experiments or demonstrations when practicable. A discussion of some of the simple elements and compounds which are of vital importance to the agriculturist will be taken up first, after which, subjects bearing directly upon dairying, horticulture, and general agriculture, will be studied. For the dairy student such subjects as the composition and value of feeding stuffs; the composition, value and care of the waste products of dairy animals, will be discussed. Some time also will be devoted to the chemistry of dairy products. For the student in horticulture special emphasis will be given the study of soils, their origin, composition and value; also a study of the chemistry of fertilizer materials, their composition, value and use. Some lectures will be arranged for the benefit of the student taking work in general agriculture. The composition, value and care of the by-products of the farm will be studied and discussed. How can wood ashes, straw, refuse from the house and barn, manures, etc., be most profitably cared for and used? For the student in household science, lectures will be given dealing with the chemistry of foods; the effect of cooking upon their composition and value. Many of the lectures and discussions arranged for the students in dairying, horticulture, and general agriculture, will be of much interest and value to the students of household science. The time of the special courses in agriculture being so short, it will not be practical to offer any laboratory work in chemistry, however, the work will be accompanied from time to time by demonstrations and experiments by the instructor.

Crop Pests and Spraying. The instruction in this subject will consist of a series of lectures upon the principal insect, fungous and other pests of cultivated crops. As far as possible these lectures will be illustrated by actual specimens of the pest under consideration and opportunity will be given the students to familiarize themselves with these pests and diseases by study of the specimens. Instruction will also be given in the preparation and testing of the principal sprays; in fumigation and other methods of controlling insect pests; and if possible opportunity will be provided to study several types of spraying outfits.

General Bacteriology. It is most important that the modern agriculturist should have a comprehensive understanding of what bacteria are, and what they do, for agriculture in all its phases is influenced by bacterial action, and the time has come when the agriculturist should avail himself of the opportunities to learn more concerning the plants of lower order, as they are of the greatest importance to his profession. The lectures upon this subject will include such topics as, the growth and care of nitrifying germs; diseases of stock and diseases of poultry, the causes, preventions and remedies; the utilization of waste products on the farm; the making of vinegar; the preserving of fruit and fruit juices; sanitation of the dairy products.

Dairy Bacteriology. Inasmuch as the quality of all products of the dairy are governed by bacterial action, a full course of lectures will be delivered to the students of the Short Course in Dairying, so that they obtain a comprehensive understanding of the underlying principles of bacteriology in its relations to dairying. This will be supplemented by laboratory demonstrations and practical work.

Poultry Husbandry. In the general agricultural course the subject of poultry husbandry will be considered and discussed from the standpoint of poultry on the farm, and the following topics will be treated: Breeds and their characteristics; feeding for eggs and for meat production; incubation, natural and artificial; poultry houses and appliances, and the general management of poultry.

DAIRYING.

The short course in Dairying is designed to familiarize the students with the modern forms of dairy apparatus, and to teach the underlying principles of the production, care, and manufacture of milk into butter and cheese. The instruction aims to teach both the how and the why, and the ideas advanced are applicable to the farm dairy as well as the larger creamery or cheese factory.

Students will meet for work six days per week. The forenoon of each day will be devoted to practical work in the dairy rooms. Two days per week will be devoted to cream separation and butter-making, two days to cheese-making, and two will be spent in the dairy laboratory. In the afternoon of each day, except those devoted to cheese-making, lectures and recitations will occupy the time during two or three hours. The object of this class room work will be to give the student a better knowledge of the underlying principles upon which the practical dairy operations are based. An outline of each portion of the work is as follows:

Laboratory Work. This work will consist of extended practice in the use of the Babcock test in determining the percentage of butter fat contained in milk, skim milk, buttermilk, cream, whey, butter, and cheese. Particular attention will be given to the use of scales in connection with cream testing. The use of acid tests for determining the ripeness of cream will be considered. Daily practice in the application of results obtained will be afforded. Pasteurization will also receive attention.

Butter-Making. Seven latest style cream separators will furnish practice in the removal of cream from milk. A combined churn, a trunk churn, and a table worker will illustrate the operations of churning and working butter. One and two-pound molds, and cutting boxes will illustrate the methods of finishing. All work in this line is to be performed by students under the direction of the instructors.

Cheese-Making. The manufacture of full-cream Cheddar cheese will be considered. Attention will be given to the small sizes known as Young Americas. Some partly skimmed milk cheese will be made to illustrate the effect of the removal of a portion of the cream. The use of various rennet tests will be taught, also the hot iron test. Small vats are used in this work in order that each student may have an opportunity to carry the work through from start to finish. A regular lecture period for the discussion of cheese-making problems will be scheduled.

Shopwork. This will include sufficient practice work in the care and operation of steam boilers and engines, together with discussions of the principles involved to enable the student to understandingly operate these machines on the farm or in the creamery. There will also be sufficient work in blacksmithing and pipe fitting to prepare the student to do simple repair work and the ordinary plumbing about the dairy or creamery.

Lecture Work. In addition to the practical work outlined above the student will have the opportunity, each afternoon, to attend three or more lectures in the various courses in soils and soil fertility, stock-feeding, stock-breeding, veterinary science, forage crops, chemistry, and bacteriology, which are briefly described elsewhere and which are closely associated with the subject of dairying.

Dairy Certificates. An arrangement will be made whereby students who pass in all the work of the short course in Dairying, and who shall subsequently during a period of eight months demonstrate their ability to manage a factory, will be granted Dairy Certificates.

HORTICULTURE.

The short course in Horticulture is designed not only to aid the beginner but also the practical fruit-grower and market-gardener, as problems will be discussed of vital interest to all. The course is conducted by means of lectures, discussions, laboratory and field exercises, thus not only telling how, but teaching the "how to do," or practical side. In order to aid in the practical work use is made of the College orchards, which contain a large variety of fruits, and other orchards in the vicinity. Market gardening is a line of work that is seriously neglected in our state. Splendid opportunities are at hand for work along these lines and exercises in the subject are offered extending through the entire short course. Not only are courses conducted along the practical lines, but the aesthetic is given some consideration in such subjects as floriculture and landscape gardening for the home. In addition to the regular class exercises, special lectures will be given from time to time by practical growers from various parts of the state.

The department has a well-equipped library, containing the works of the leading authorities along horticultural lines. These references are available for student use, as well as a large number of the leading horticultural periodicals. Every Monday evening the Lewelling Club, which is the College horticultural club, holds a meeting from 7:30 to 9:00, to which all Short Course students are cordially invited. Topics of general interest to horticulturists are discussed.

Fruit Growing. A series of lectures and discussions on such topics of horticultural interest as, selection of site, methods of culture, cover crops, irrigation, thinning, pruning, pollination, selection of varieties, handling the crop, forming of associations, the market, by-products; special culture of such fruits as apples, pears, cherries, prunes, peaches, nuts, small fruits and cranberries.

Orchard Practice. This course embraces exercises in all the necessary practices in orchard management from the establishment of the seedling in the nursery row until the orchard is producing its maximum crops. Each student will be required to do budding, grafting, platting and setting orchards, pruning both the small and tree fruits, and establishing berry patches. The student will also be made familiar with the most up-to-date picking and packing appliances. The laboratory exercises will be supplemented by lectures and reference reading. Excursions will be made when practicable to neighboring orchards for extra field demonstrations and practical applications of orchard methods.

Vegetable Growing. In this course the principles of vegetable growing for the home garden will be considered, such as locations, soils, modes of cultivation, harvesting, etc. Special attention, however, will be paid to the growing of vegetable crops on an extensive scale both for the market and canning industry, together with economic problems in connection with the same. The use and advantage of glass structures for early propagation and forcing of vegetables will also form important topics for consideration. Lectures will be supplemented by discussions and laboratory work.

Floriculture and Landscape Gardening. Lectures and class exercises on the propagation and care of plants for the home, and landscape gardening as related to the farm home.

MECHANIC ARTS.

Three short courses are offered in Mechanic Arts. These courses are practicums or laboratory courses where the student actually performs the work, receiving instructions in principles and methods involved at the same time. It is the desire of those in charge, to make these courses helpful to persons who, for any reason, cannot take the more extensive work offered in the regular College courses. While the time allotted is short, it is hoped that it may be fully utilized by taking up only such parts of the subject as will be of most benefit to the student.

Woodwork. The purpose of this course is to give instruction in the care and use of woodworking tools, as well as in the elementary principles of carpentry.

To those who are not already familiar with such matters, instruction and practice will be given in sharpening chisels, planes and other edge tools; in filing and setting saws and in the use of the carpenter's square in framing braces, rafters, hips, etc.

Practical mechanics, who already have a working knowledge of hand tools, may obtain instruction in band sawing, jig sawing, wood turning and work on the moulder.

The time required for this course is two consecutive periods daily.

Blacksmithing. This course is offered to those who desire to learn how to make simple repairs and improvements about the farm and shop. Instruction is given in building and managing a forge fire, in bending, forging and welding iron, sharpening plows, making and threading bolts and nuts, also in making and tempering punches and cold chisels. The full course requires attendance during two consecutive periods daily.

Mechanical Drawing. It is the purpose of this course to aid those who desire to obtain sufficient knowledge of drawing to enable them to make rough plans of buildings or drainage systems, or sketches of machinery, as well as to read intelligently complete drawings. No costly or elaborate set of instruments will be required for this work. The purpose of the course is to meet the requirements of the farmer or mechanic rather than those of the engineer. Time required, two periods daily.

Domestic Science and Art.

Self interest and public interest make it apparent to every intelligent person how greatly in need are subjects pertaining to the home of being "touched to fine issues," hence their introduction as studies into college curricula.

We have been reviled as "the most common schooled and least cultivated among all civilized nations," and this largely through our deplorable indifference to, and ignorance of, the common facts and necessities of life.

"The home as we find it today has scant warrant that anything born of its teaching is worth while to impart, yet the problem grows of how to get better results, how to lessen the labor of the farmer's wife, the washer-woman, the cook, the boarding-house keeper, the city missionary, the school teacher, and the woman of fashion."

The solution requires something more than the knitting of the brow over theories; there must be actual testing of these theories by practice in the college laboratory, if they are to have value and permanence. The precious acquisition of the scholar who knows, must be further supplemented by that of the artisan who does.

The various subjects pertaining to the home will be presented under the two following heads, Domestic Science and Domestic Art.

The work in the short course in Domestic Science will consist of daily lectures upon the chemical composition, nutritive value and digestibility of foods; meat, milk, cheese, soups, and beef extracts, vegetables, cereals, fruits, nuts, etc., will be studied individually. The latter part of the course will be devoted to discussion of digestion in health, feeding of children, and the principles of feeding in disease, with a study of the diet necessary in some of the most common diseases.

In the laboratory, the preparation of food materials will be based on a knowledge of their composition and the chemical changes effected by heat and moisture. A study will be made of the cooking processes which will give best results in retaining the nutritive principles in the most digestible form.

The work in Domestic Art will consist of lectures and daily practice work in the cutting, fitting and dress-making rooms. The lectures will treat of the economical purchase of dress goods, illustrated with samples; harmony of colors and grace of outline; hand sewing, and how to give instruction to the children in the home. The practice work will consist of taking measures and laying patterns, cutting and making of simple dresses, shirtwaists and tailor-made waists.

In addition to the regular work in Domestic Science and

Art, there will be social hours once a week in which the following subjects will be presented as topics of conversation:

How can we cultivate social life on the farm?
Home reading clubs;
What we may do to improve our home grounds;
The country school house and its surroundings.

Provision will also be made whereby those taking the course in Domestic Science and Art and who so desire may attend such of the courses in the other departments as they may desire. For instance, in the dairy course they may receive instruction in the care of milk and butter-making on the farm; in the horticultural course, instruction in the culture of small fruits, budding, grafting, care of the home garden, and of the home grounds; in poultry husbandry, instruction in the characteristics of the various breeds of fowls and their handling for profit; in bacteriology, instruction regarding the relation of bacteria to the home, and in fact, any of the other courses herein described may be selected if the student so desires.

THIRTY-NINTH ANNUAL COMMENCEMENT

GRADUATES FROM THE COLLEGE, 1908.

ADVANCED DEGREES.

Civil Engineer:

Wilford W. Gardner	Afton	Wyoming

Electrical Engineer:

Samuel Herman Graf	Portland	Multnomah

Mechanical Engineer:

Joel Emily	Troutdale	Multnomah

BACHELOR'S DEGREES.

Bachelor of Science in Agriculture:

Renton Kirkwood Brodie	Lents	Multnomah
Cleve John Currin	Ione	Morrow
Frederick Llewellyn Griffin	Canby	Clackamas
Charles Henry Hays	Sherwood	Washington
Roscoe Verne Lake	Corvallis	Benton
Mohammed Abdul Rashid	Aligark	India
Ralph Elmer Reynolds	La Grande	Union
Claud Bates Sprague	Oregon City	Clackamas

Bachelor of Science in Household Science:

Carrie Buchanan	Corvallis	Benton
Mildred Buchanan	Corvallis	Benton
Lillie Florence Currin	Heppner	Morrow
Mildred Eleanor Dyer	Albany	Linn
Cleo Lorena Johnson	Corvallis	Benton
Vesta Kerr	Corvallis	Benton
Bertha Anna King	Corvallis	Benton
Mabel Hariette Kinnison	Baker City	Baker
May Oviatt	Buell	Polk
Hariette Faye Roadruck	Irrigon	Morrow
Mary Rosa Scoggin	Laidlaw	Crook
Grace Elizabeth Starr	Bellfountain	Benton

Bachelor of Science in Civil Engineering:

Wilford W. Gardner	Afton	Wyoming
Percy Albert Lockwood	Portland	Multnomah
Charles Taylor Parker	Salem	Marion
Ralph Infield Thomson	Heppner	Morrow

Bachelor of Science in Electrical Engineering:

Walter Rawalt Baker	Salem	Marion
Sherman Asher Brown	Ft. Klamath	Klamath
Lincoln Beaumont Chambers	Kings Valley	Benton
Norris Everard Chapin	Walla Walla	Washington State
Conrad Christiansen	Toledo	Lincoln
Claud Olson Davolt	Catlin	Washington State
William Harling Davolt	Catlin	Washington State
Fred Noble Fox	La Grande	Union
Fred Knaus	Oswego	Clackamas
Thomas Roy Sleight	Oregon City	Clackamas
Edward Sprague Thayer	Rainier	Columbia
Howard Weston Taber	Sheridan	Yamhill
Ruper Wall	Early	Sherman
Eugene Cvrus Wiggen	Westport	Clatsop
Walter Ernest Wood	Corvallis	Benton
David Alvis Wright	Woodburn	Marion

Bachelor of Science in Mechanical Engineering:

Arvid Anderson	Albany	Linn
William James Dunlap	Shedds	Linn
William Yates Farnsworth	Beaver	Utah
John Edward Hanny	Oregon City	Clackamas
David MacMillan	Sellwood	Multnomah
James Donald Paul	Mt. Tabor	Multnomah
Sohan Lall Ravi	Amritsar	India
Earl Wayne Wallace	Hillsboro	Washington
John Franklin Winniford	Wren	Benton

Bachelor of Science in Mining Engineering:

Herbert Edward Cooke	Shaniko	Wasco
Burton Leigh Cunningham	Ft. Klamath	Klamath
Benjamin Howard Greenhaw	Portland	Multnomah
Pala Singh Harbans	Baddoowal	India
John Melhase	Ft. Klamath	Klamath
Ralph St. Clair Milln	Oregon City	Clackamas

Bachelor of Science in Literary Commerce:

Kate Dolores Adams	Myrtle Creek	Douglas
Mabel Burdette Cady	Holbrook	Nebraska
George B. Carmichael	Weston	Umatilla
Grace Cramer	Holbrook	Nebraska

Greta India Gray	Arapahoe	Nebraska
Lora Maud Hansell	Corvallis	Benton
Bessie Ruth Herbert	Corvallis	Benton
Lettitia Pearl Leonard	Sheridan	Yamhill
Homer Clarence Leonard	Sheridan	Yamhill
John Godfrey Schroeder	Portland	Multnomah
Alva Edwin Stovall	Philomath	Benton
Clyde Everett Williamson	Albany	Linn
Reuben Ernest Wills	Heppner	Morrow
Ernest Rowland Woods	Albany	Linn

Bachelor of Science in Pharmacy:

Glen DeHaven	Dallas	Polk
Margaret Dunlap	Shedds	Linn
DeWalt Quinn Elrod	Portland	Multnomah
Earle Paul Harding	Gaston	Washington
Clarence William Johnson	Newberg	Yamhill
Fred Kerr	Corvallis	Benton
Liva Charles McLain	La Grande	Union
Joseph William Howard	Prineville	Crook
Marcus Struve	Pendleton	Umatilla
Lyman Albert Bundy	Moscow	Idaho
Walter Robertson Waggoner	Corvallis	Benton

CATALOGUE OF STUDENTS.

(Key to the abbreviations following students' names: Agri.—Agriculture; H. S.—Household Science; C. E.—Civil Engineering; Elec.—Electrical Engineering; Mech.—Mechanical Engineering; Min.—Mining Engineering; L. C., Literary Commerce; Phar.—Pharmacy.)

GRADUATES:

Name.	Course.	Postoffice.	County.
Percival Lysander Adams		Hood River	Wasco
Elizabeth Nina Bell	H. S.	Beaver City, Nebraska	
Samuel Louis Bennett	Agri.	Medford	Jackson
Claude Cliffton Cate	Agri.	Hillsboro	Washington
Bertha Davis	H. S.	Corvallis	Benton
Joel Emily	M. E.	Troutdale	Multnomah
Wilford W. Gardner	C. E.	Afton, Wyoming	
Helen Gilkey		Montesano, Washington	
Samuel Herman Graf	M. E. & E. E.	Portland	Multnomah
Laura Hill	Agri.	Hood River	Wasco
Vera Horner		Corvallis	Benton
Fred Stephenson Norcross	Min.	Menominee, Michigan	
Harvey Earl Rinehart	Phar.	The Dalles	Wasco
Carl Marion Stebinger	Min.	Portland	Multnomah
Claude Swann		Buena Vista	Polk

SENIORS:

Name.	Course.	Postoffice.	County.
Kate Dolores Adams	L. C.	Myrtle Creek	Douglas
Arvid Anderson	Mech.	Albany	Linn
Walter Rawalt Baker	Elec.	Salem	Marion
Renton Kirkwood Brodie	Agri.	Lents	Multnomah
Sherman Asher Brown	Elec.	Ft. Klamath	Klamath
Carrie Buchanan	H. S.	Corvallis	Benton
Mildred Buchanan	H. S.	Corvallis	Benton
Lyman Albert Bundy	Phar.	Moscow, Idaho	
Maybel Burdette Cady	L. C.	Holbrook, Nebraska	
George B. Carmichael	L. C.	Weston	Umatilla
Lincoln Beaumont Chambers	Elec.	Kings Valley	Benton
Norris Everard Chapin	Elec.	Walla Walla, Wash.	
Conrad Christiansen	Elec.	Toledo	Lincoln
Herbert Edward Cooke	Min.	Shaniko	Wasco
Grace Cramer	L. C.	Holbrook, Nebraska	
Burton Leigh Cunningham	Min.	Ft. Klamath	Klamath

Cleve John Currin	Agri.	Ione	Morrow
Lillie Florence Currin	H. S.	Heppner	Morrow
Claud Olson Davolt	Elec.	Catlin, Washington	
William Harling Davolt	Elec.	Catlin, Washington	
Glen DeHaven	Phar.	Dallas	Polk
Margaret Dunlap	Phar.	Shedds	Linn
William James Dunlap	Mech.	Shedds	Linn
Mildred Elanore Dyer	H. S.	Albany	Linn
William Yates Farnsworth	Mech.	Beaver	Utah
DeWalt Quinn Elrod	Phar.	Portland	Multnomah
Fred Noble Fox	Elec.	La Grande	Union
Wilford W. Gardner	C. E.	Afton, Wyoming	
Greta India Gray	L. C.	Arapahoe, Nebraska	
Benjamin Howard Greenhaw	Min.	Portland	Multnomah
Frederick Llewellyn Griffin	Agri.	Canby	Clackamas
John Edward Hanny	Mech.	Oregon City	Clackamas
Lora Maud Hansell	L. C.	Corvallis	Benton
Pala Singh Harbans	Min.	Baddoowal, India	
Earle Paul Harding	Phar.	Gaston	Washington
Charles Henry Hays	Agri.	Sherwood	Washington
Bessie Ruth Herbert	L. C.	Corvallis	Benton
Joseph William Howard	Phar.	Prineville	Crook
Clarence William Johnson	Phar.	Newberg	Yamhill
Cleo Lorena Johnson	H. S.	Corvallis	Benton
Fred Kerr	Phar.	Corvallis	Benton
Vesta Kerr	H. S.	Corvallis	Benton
Bertha Anna King	H. S.	Corvallis	Benton
Mabel Harriette Kinnison	H. S.	Baker City	Baker
Fred Knaus	Elec.	Oswego	Clackamas
Roscoe Verne Lake	Agri.	Corvallis	Benton
Homer Clarence Leonard	L. C.	Sheridan	Yamhill
Lettitia Pearl Leonard	L. C.	Sheridan	Yamhill
Percy Albert Lockwood	C. E.	Portland	Multnomah
David MacMillan	Mech.	Sellwood	Multnomah
Liva Charles McLain	Phar.	La Grande	Union
John Melhase	Min.	Ft. Klamath	Klamath
Ralph St. Clair Milln	Min.	Oregon City	Clackamas
May Oviatt	H. S.	Buell	Polk
Charles Taylor Parker	C. E.	Salem	Marion
James Donald Paul	Mech.	Mt. Tabor	Multnomah
Mohammed Abdul Rashid	Agri.	Aligark, India	
Sohan Lall Ravi	Mech.	Amritsar, India	
Ralph Elmer Reynolds	Agri.	La Grande	Union
Harriette Faye Roadruck	H. S.	Irrigon	Morrow
John Godfrey Schroeder	L. C.	Mt Tabor	Multnomah
Mary Rosa Scoggin	H. S.	Laidlaw	Crook
Thomas Roy Sleight	Elec.	Oregon City	Clackamas

Claude Bates Sprague	Agri.	Oregon City	Clackamas
Grace Elizabeth Starr	H. S.	Bellfountain	Benton
Alva Edwin Stovall	L. C.	Philomath	Benton
Marcus Struve	Phar.	Pendleton	Umatilla
Howard Weston Taber	Elec.	Sheridan	Yamhill
Edward Sprague Thayer	Elec.	Rainier	Columbia
Ralph Infield Thompson	C. E.	Heppner	Morrow
Walter Robertson Waggoner	Phar.	Corvallis	Benton
Rupert Wall	Elec.	Early	Sherman
Earl Wayne Wallace	Mech.	Hillsboro	Washington
Eugene Cyrus Wiggen	Elec.	Westport	Clatsop
Clyde Everett Williamson	L. C.	Albany	Linn
Reuben Ernest Wills	L. C.	Heppner	Morrow
John Franklin Winniford	Mech.	Wren	Benton
Walter Ernest Wood	Elec.	Corvallis	Benton
Ernest Rowland Woods	L. C.	Albany	Linn
David Alvis Wright	Elec.	Woodburn	Marion

JUNIORS:

Name.	Course.	Postoffice.	County.
Thomas John Autzen	Elec.	Hoquiam, Washington	
Charles Irvin Barnes	Phar.	Elgin	Union
Jesse James Beaty	Elec.	Ballston	Polk
Orren Beaty	Agri.	Ballston	Polk
Charles F. Bendshadler	Elec.	Elgin	Union
George Henry Benshadler	Elec.	Elgin	Union
Albert Francis Bernard	Mech.	Beaverton	Washington
Arthur Stephen Blanchard	Elec.	Marshfield	Coos
Harry Bowman	Mech.	Hillsboro	Washington
Elmer Clarence Buchanan	Elec.	Corvallis	Benton
Philip Harrison Cale	L. C.	Albany	Linn
Edward Cleveland Calloway	Phar.	Ontario	Malheur
Claud Franklin Chambers	L. C.	Kings Valley	Benton
Alexander K. Chapman	Elec.	Grants Pass	Josephine
Roy Ross Clark	Min.	Portland	Multnomah
Oliver Kenneth Cole	Elec.	Turner	Marion
George Albert Cross	Elec.	Dundee	Yamhill
Elmer Raymond Crowe	Elec.	Eugene	Lane
Linnie Currin	H. S.	Ione	Morrow
Gertrude Luella Davidson	H. S.	Ione	Morrow
Jessie May Davidson	H. S.	Ione	Morrow
Earl Irving Donelson	Elec.	Hillsboro	Washington
Hamilton Keys Donnelly	C. E.	Richmond	Wheeler
Joseph Earle Edwards	Elec.	Monroe	Benton
Velma Ethel Edwards	H. S.	Mayville	Gilliam
Georgia Virginia Ewing	H. S.	Oswego	Clackamas
Jesse Smart Gilkey	Elec.	Montesano, Washington	

Bernhard John Groth	Elec.	Dundee	Yamhill
Sylvester Benjamin Hall	Agri.	Cleone	Multnomah
Violet Irene Hancock	L. C.	Cove	Union
Charles Sinclair Harris	Elec.	Vale	Malheur
Arthur Donald Hill	Elec.	Hood River	Wasco
Alice Pearl Horner	L. C.	Corvallis	Benton
Callie Alma Howe	L. C.	Sheridan	Yamhill
Ernest Alsworth Hudson	C. E.	Milton	Umatilla
Carl Thomas Jefferson	L. C.	Weiser, Idaho	
Ivin Earl Kerr	L. C.	Ora, Idaho	
Robert Marriner Kerr	C. E.	Ora, Idaho	
James Koeber	Agri.	Sherwood	Washington
Marshall James Lazelle	Agri.	Oregon City	Clackamas
Charles Herbert Leonard	Elec.	Sheridan	Yamhill
Fred Deininger Luse	Mech.	Lents	Multnomah
Edmund Samuel McElligott	Agri.	Ione	Morrow
Fred Marshall McHenry	L. C.	Corvallis	Benton
Wayne Carl McLagan	Elec.	Tangent	Linn
Frank Lester Michelbook	L. C.	McMinnville	Yamhill
Donald Fain Morgan	Elec.	Portland	Multnomah
Evaline Newkirk	H. S.	Oregon City	Clackamas
Lois Lucinda Pratt	H. S.	Mound City, Missouri	
Roy Wilber Price	C. E.	Scappoose	Columbia
Robert Henry Rodgers	Mech.	Portland	Multnomah
Modesta Florence Rosendorf	L. C.	Corvallis	Benton
Edna Mae Russ	H. S.	Ashland	Jackson
Charles Frederick Schirmer	Min.	Oregon City	Clackamas
Alfred Schoel	Phar.	Albany	Linn
Claud Schrack	Agri.	Tangent	Linn
Arthur Byron Smith	Elec.	Newberg	Yamhill
Fred Lloyd Spires	Elec.	Myrtle Point	Coos
Cedric Hiram Stone	Agri.	Cleone	Multnomah
John Curtis Strebin	C. E.	Troutdale	Multnomah
William Dantzler Sutton	Elec.	Portland	Multnomah
Durland Orville Taggart	Elec.	Vale	Malheur
Clarence Theodore West	Elec.	Rock Creek	Gilliam
Elmer Benton Williamson	L. C.	Albany	Linn
Robert Vernon Williamson	Agri.	Wells	Benton
Frank Jackson Wilson	Phar.	Canyonville	Douglas
Martha Delilah Winniford	H. S.	Wren	Benton
Gilbert Fayette Winslow	Min.	Oysterville, Washington	
Ralph William Worstell	Elec.	La Grande	Union
Henry Roderick Zimmerman	Elec.	The Dalles	Wasco
Peter Chris Zimmerman	Elec.	North Yamhill	Yamhill

SOPHOMORES:

Name.	Course.	Postoffice.	County.
Thomas Sidney Abbott	Min.	Corvallis	Benton
Albert G. Emil Abendroth	Min.	Portland	Multnomah
Harold Barbur	For.	Portland	Multnomah
Warren Keifer Barnell	Min.	Portland	Multnomah
Grace Monemia Bath	H. S.	Hillsboro	Washington
Claud Carthel Baynard	Elec.	Silverton	Marion
Frank Richard Becker	Elec.	Philomath	Benton
Harold Wilson Bell	Mech.	The Dalles	Wasco
Sadie Bell	H. S.	Beaver City, Nebraska	
Harry George Benson	C. E.	Klamath Falls	Klamath
Hamon Shelley Bilyeu	Min.	Athena	Umatilla
Otto Karl Blackaby	Mech.	Ontario	Malheur
Louis Hobart Booth	Elec.	Mt. Hood	Wasco
Charles Edwin Bowen	Min.	Osyterville, Washington	
Robert Edgar Bower	Agri.	Silverton	Marion
Urie Eugene Brown	Min.	Shedds	Linn
Chloe Allen Burris	Elec.	Fairbanks, Alaska	
William Henry Burton	For.	Portland	Multnomah
Harry Palmer Cady	Mech.	Holbrook, Nebraska	
Ralph Cady	Phar.	Dayton, Washington	
Ross Cady	Phar.	Dayton, Washington	
John Lee Caldwell	Min.	Burns	Harney
Emil Elmo Carroll	Phar.	Union	Union
Edith Hazel Casteel	L. C.	Yaquina	Lincoln
Mary Enid Cate	H. S.	Hillsboro	Washington
Ralph Orin Caves	Agri.	Hoskins	Benton
Bess Irene Chipman	L. C.	The Dalles	Wasco
Bliss Lucius Clark	C. E.	Hood River	Wasco
Frank Wood Connell	C. E.	Hillsboro	Washington
Grace Elizabeth Connell	H. S.	Hillsboro	Washington
Malcolm Robert Cox	Min.	Hoquiam, Washington	
Bertha Leona Cramer	L. C.	Corvallis	Benton
Frank Elsworth Cross	C. E.	Hebo	Tillamook
Homer Morton Cross	Agri.	Hebo	Tillamook
Howard C. Cunningham	C. E.	Ft. Klamath	Klamath
Amy Cyrus	H. S.	Crabtree	Linn
Harvey William Currin	Agri.	Ione	Morrow
Mary Louvia Davis	L. C.	Albany	Linn
Minnie Diven	L. C.	Vale	Malheur
Ezra Stephen Dixon	Min.	Forest Grv.	Washington
Leslie Louis Doane	L. C.	Sumpter	Baker
Roscoe Britten Doane	Phar.	Sumpter	Baker
James Davis Dobbin	Agri.	Union	Union
Roswell Dosch	C. E.	Hillsdale	Washington

James Leo Duffy	Agri	Milwaukie	Clackamas
Ella Belle Dunlap	Phar	Shedds	Linn
Belle Bertie Edwards	H. S	Monroe	Benton
Bertha Beulah Edwards	H. S	Monroe	Benton
Harry Evans	Min	Bourne	Baker
Fred Edgerton Ewart	Elec	Portland	Multnomah
Jackson Kenelem Fairchild	Elec	Portland	Multnomah
John Waldo Finn	Agri	McCoy	Polk
Raymond Henry Fleser	Elec	Union	Union
Russell Harrison Fleser	Elec	Union	Union
Walter Clayton Gagnon	Elec	Roseburg	Douglas
Joseph Allan Ganong	Elec	Oregon City	Clackamas
Carl Francis Galligan	Agri	Hood River	Wasco
Walter Carol Galloway	C. E	Hillsboro	Washington
Viola Gardner	L. C	Corvallis	Benton
Thomas Leigh Gatch	Mech	Salem	Marion
Winnifred Evangeline Gates	H. S	Corvallis	Benton
Vincent Paul Gianella	Mech	Honcut, California	
Beulah Gilkey	H. S	Montesano, Washington	
Lloyd Rosco Goodrich	C. E	Dayton	Yamhill
Merrill Eugene Groshong	Phar	Enterprise	Wallowa
Martin James Gribble	For	Mt. Hood	Wasco
Kenneth Burton Grim	Elec	Hubbard	Marion
Bernhard John Groth	Elec	Dundee	Yamhill
Frank Edward Hall	Agri	Milwaukie	Clackamas
Ellsworth Braden Hanna	Phar	Hood River	Wasco
Ethel Elnora Harpole	H. S	Junction City	Lane
Ralph Hamilton Hawley	C. E	Monroe	Benton
Clyde Crawford Hayden	Elec	Alsea	Benton
Homer Harry Hayes	L. C	Joseph	Wallowa
Bertha Emma Herse	H. S	Corvallis	Benton
Claire Holgate	L. C	Baker City	Baker
Soren Francisco Holm	Elec	Portland	Multnomah
Leland Barton Howey	L. C	Coquille	Coos
Charles Harry Howard	Elec	Bridal Veil	Multnomah
Charles Darwin Hull	Elec	Cottage Grove	Lane
Georgie Washington Irvine	H. S	McMinnville	Yamhill
Francis Clopton Jackson	Mech	Portland	Multnomah
Junius Whiteaker Jarvis	Phar	Portland	Multnomah
John Jacob Karstetter	Mech	Silverton	Marion
Elton Irwin Kelly	Elec	Troutdale	Multnomah
Richard Percy Landes	Elec	Albany	Linn
William George Lane	L. C	Harrisburg	Linn
John Braden Leech	L. C	Woodburn	Marion
Donald Lines	Meh	Albany	Linn
James Rhea Luper	C. E	Heppner	Morrow
William Lester Marrs	Mech	Oregon City	Clackamas

Siegfried Maurer	Min	Eugene	Lane
Fred Samuel McCall	Agri	Salem	Marion
Max Adams McCall	Agri	Scio	Linn
Nelson Felde McColl	Elec	Gresham	Multnomah
Lillian McCready	L. C.	Suver	Polk
Russell Alfred McCully	Agri	Hood River	Wasco
Marie Alice McGinnis	L. C.	Moro	Sherman
Frederick Emmett McGrew	L. C.	Weston	Umatilla
Gertrude E. McHenry	L. C.	Corvallis	Benton
Glenn Kenneth McKenzie	Min	Kalama, Washington	
James Stewart McMahan	C. E.	Corvallis	Benton
Mabel Clare McNabb	H. S.	Ione	Morrow
Cecil Metcalf	Elec	Portland	Multnomah
Elmer Metzger	Min	Gresham	Multnomah
Elliott Maxwell Mitchell	C. E.	Portland	Multnomah
Charles Langelle Moore	Mech	Klamath Falls	Klamath
John Armour Muldrick	Min	Canyon City	Grant
Nellie Lee Naill	H. S.	Hillsboro	Washington
Roscoe Neal	C. E.	Baker City	Baker
George Allen Nelson	Agri	Scappoose	Columbia
Robert Warrac Nelson	C. E.	Lafayette	Yamhill
Howard O'Connor	C. E.	Montague, California	
Estelle Beatrice Olsen	H. S.	Warrenton	Clatsop
Ralph Foster O'Rourke	Min	Sumpter	Baker
Jud Oviatt	Phar	Buell	Polk
Wintha Rudolph Palmer	Agri	Dallas	Polk
Jesse J. Peddicord	Min	Portland	Multnomah
Maymie O'Cleva Peery	H. S.	McMinnville	Yamhill
Jack Francis Pernot	For	Corvallis	Benton
Edgar George Pickler	Min	La Grande	Union
John Clyde Plankington	Elec	Dallas	Polk
Bessie Evalena Pogue	H. S.	Ontario	Malheur
Joel William Powell	Mech	Hood River	Wasco
Allyne Francis Pratt	Min	Portland	Multnomah
Horace Minor Probst	Elec	Albany	Linn
Roy Eugene Rawson	Elec	Vancouver, Washington	
Jay Merritt Reynolds	Agri	La Grande	Union
Clifford Leland Reed	Phar	Burns	Harney
Elsie Mae Rice	L. C.	Clear Lake, Iowa	
Katie Maysel Ridgeway	H. S.	Buell	Polk
Alvhild Romtvedt	H. S.	Toledo	Lincoln
Gordon Rosendorf	Phar	Corvallis	Benton
Raymond Selly	Agri	Sherwood	Washington
William Alvi Sellwood	C. E.	Milwaukie	Clackamas
Holly Henry Siemens	Mech	Klamath Falls	Klamath
Earl Jackson Silva	Mech	Rainier	Columbia
Richard William Skibbe	C. E.	The Dalles	Wasco

Mason Goodwin Smith	Elec.	Burns	Harney
Neil Tristam Smith	Elec.	Burns	Harney
Edgar Adolf Sorenson	Mech.	Harrisburg	Lane
Ella Mae Spera	H. S.	Akron, Indiana	
Helen Maude Sprague	H. S.	Oregon City	Clackamas
Roy Herbert Sprague	Elec.	Oregon City	Clackamas
Marion Louise Sproat	L. C.	Hood River	Wasco
Claire Weltha Starr	L. C.	Junction City	Lane
Clyde Everette Starr	Agri.	Junction City	Lane
Ruby Starr	H. S.	Albany	Linn
Frank Benjamin Steen	Agri.	Lebanon	Linn
Herbert George Suttle	Agri.	Portland	Multnomah
Maurice Earl Taber	Mech.	Sheridan	Yamhill
Zack Lester Taylor	L. C.	Corvallis	Benton
Owen Hancock Test	C. E.	Ontario	Malheur
Ruth Thayer	H. S.	Rainier	Columbia
Jesse Almond Tiffany	Agri.	Portland	Multnomah
Carl Cliffton Titus	Mech.	Kingston	Linn
William Alfred Toner	Mech.	Yaquina	Lincoln
Ina Content True	L. C.	Mason City, Iowa	
Roy Clarke True	Elec.	Mason City, Iowa	
Evans Craig Varner	Elec.	Marx	Tillamook
Chester Andrus Vincent	C. E.	St. Johns	Multnomah
Pearl Elnora Vincent	H. S.	Corvallis	Benton
Homer Stacy Wall	C. E.	Early	Sherman
Edwin Wheeler Wallace	Elec.	Independence	Polk
Frank Wilson Wait	Min.	Medford	Jackson
Charles Adam Watts	Min.	Vancouver, Washington	
Mattie Loraine Wells	Phar.	Ashland	Jackson
Ralph Lovell West	Agri.	Westport	Clatsop
William Grant Whitford	Phar.	Oxford, Iowa	
Omar Blanchard Willey	Elec.	Ashland	Jackson
Floyd James Williams	Elec.	Roselawn, California	
Pearl Irene Williams	Phar.	Jorday Valley	Malheur
Roy Terry Williams	Agri.	Forest Gve.	Washington
Lena May Wilson	H. S.	Brownsville	Linn
Sinclair Albert Wilson	For.	Linnton	Multnomah
Mabel Evalena Wood	H. S.	Corvallis	Benton
Alfred Mason Woodruff	Agri.	Cleveland	Douglas
Cora Myrtle Yocum	H. S.	Estacada	Clackamas

FRESHMEN:

Name.	Course.	Postoffice.	County.
Challis William Allen	L. C.	Lostine	Wallowa
Edward Everett Allen	L. C.	Portland	Multnomah
Hazel Allen	H. S.	Portland	Multnomah
Lawrence Fremont Allen	Phar.	Lostine	Wallowa

Vera Allen	H. S.	Hood River	Wasco
William Cawston Allen	Mech.	Portland	Multnomah
Robert Ross Alexander	Agri.	Roy, Washington	
Chancie Jacob Allison	Mech.	Bridal Veil	Multnomah
Roy Anderson	Elec.	Tillamook	Tillamook
Charles Eric Armstrong	Mech.	Corvallis	Benton
Albert Asbahr	Agri.	Cornelius	Washington
Guy Aupperle	L. C.	Jefferson	Marion
Virgil Bennet Avery	Agri.	Corvallis	Benton
Almont Arlie Bailey	Elec.	Mt. Tabor	Multnomah
Clara Blanche Baker	L. C.	Corvallis	Benton
Hazel Emma Baker	L. C.	Corvallis	Benton
Mabel Mary Baker	H. S.	Albany	Linn
Delle May Baldwin	L. C.	Corvallis	Benton
Charles Earnest Barber	Phar.	Richland	Baker
Harold Barchus	Mech.	Portland	Multnomah
James Linwood Batchelder	Agri.	Hillsboro	Washington
Walter Boone Beasley	Mech.	Irrigon	Morrow
Roy Bell	Elec.	Corvallis	Benton
Homer James Bemis	Elec.	Lostine	Wallowa
Roy Mervin Benson	Elec.	Univer. Pk.	Multnomah
Henry Bergman	Elec.	Gardiner	Douglas
Everett Monroe Billings	Elec.	Union	Union
Louis Eugene Billings	Phar.	Union	Union
Edward Bilyeu	Min.	Athena	Umatilla
Jessie Evelyn Bodle	H. S.	Portland	Multnomah
William Bollons	C. E.	Portland	Multnomah
Roy Borden	Elec.	Newport	Lincoln
LeRoy Breithaupt	Agri.	Clackamas	Clackamas
Rolstvn Daniel Bridges	L. C.	Myrtle Point	Coos
Floyd Owen Bristow	C. E.	Monroe	Benton
Cecil Marie Brogden	H. S.	Hillsboro	Washington
Edith Stanley Brodgen	H. S.	Hillsboro	Washington
Earl Chase Brooks	Mech.	Corvallis	Benton
Walter Broomhall	Elec.	Baker City	Baker
Carrie Brouillette	H. S.	Newberg	Yamhill
Minnie Beatrice Brown	H. S.	Glide	Douglas
Frank Ross Brown	Agri.	Camas, Washington	
Vernon Brown	Phar.	Corvallis	Benton
Saxon Berners Bruce	Elec.	Airlie	Polk
Thomas Leroy Burns	L. C.	Gold Beach	Curry
William Robert Burrow	Phar.	Burns	Harney
Lessie Pearl Bush	H. S.	Hoskins	Benton
Gorman Reed Burtner	Phar.	Lowden, Washington	
Arthur William Burton	Phar.	San Francisco, California	
Wilfred Caffyn	Phar.	Astoria	Clatsop
Anda Clarence Calvert	Agri.	Junction City	Lane

Elmer Dewitt Calvin	C. E.	Amity	Yamhill
Hazel Louise Carlson	H. S.	St. Johns	Multnomah
William Robert Carlson	Mech.	Bridal Veil	Multnomah
John Darwin Carnegie	Elec.	Albany	Linn
George Fitzhugh Carter	Elec.	Portland	Multnomah
Harry Earl Carter	C. E.	Kerby	Josephine
Myrtle Cartwright	L. C.	Junction City	Lane
Nellie Roxana Cate	H. S.	Washougal, Washington	
James Marion Caughell	C. E.	Gold Beach	Curry
Chester William Chambers	L. C.	Wren	Benton
Vera Leahnora Chambers	Phar.	Corvallis	Benton
Orren Kerry Charles	L. C.	Portland	Multnomah
John Clark	Mech.	Alicel	Union
William Clark	Agri.	Hood River	Wasco
Nellie Ione Coad	H. S.	Buell	Polk
William Ben Cochran	Agri.	Monument	Grant
Allan Collette	Phar.	Montesano, Washington	
Inez Romana Colvig	H. S.	Canyonville	Douglas
Maud Cone	H. S.	McMinnville	Yamhill
Everett E. Cook	Mech.	Elk City	Lincoln
Benjamin Harrison Cooper	Elec.	Corvallis	Benton
Roy Francis Cooper	Phar.	Corvallis	Benton
John Madison Copeland	C. E.	Ft. Klamath	Klamath
Berthel Claude Copple	Agri.	Hood River	Wasco
Laura Cottrell	L. C.	Gresham	Multnomah
Walter Lee Creswell	Mech.	Pendleton	Umatilla
Wren Clark Crews	C. E.	Klamath Falls	Klamath
Mabry Zerilda Currin	H. S.	Heppner	Morrow
Nettie Elsie Currin	H. S.	Heppner	Morrow
Ira Newton Custer	Elec.	Albany	Linn
Ward Cyrus	L. C.	Scio	Linn
Bessie Danneman	Phar.	Clem	Gilliam
John Wernier Darling	Agri.	Oregon City	Clackamas
Lottie Davey	H. S.	Boise, Idaho	
Robert Leroy Davidson	Min.	Union	Union
Glen William Davis	Agri.	Albany	Linn
Harold Leslie Davis	Mech.	Hoquiam, Washington	
John Dudley Dawson	L. C.	Boise, Idaho	
Leonard Day	Agri.	Berkeley, California	
Robert Clyde Day	Mech.	La Grande	Union
Charles Robert Dear	Elec.	Oakland	Douglas
Robert Benjamin Denney	Agri.	Beaverton	Washington
Carroll Francis DeSouchet	Agri.	Boise, Idaho	
Clarence Cummings Dickson	Agri.	Loleta California	
Percy Lucas Dodd	Elec.	Falls City	Polk
Gertrude Alice Dorsey	H. S.	Dayton	Yamhill
Luther Andy Duckworth	Min.	Sumpter	Baker

Walter Wilbur duMoulin	Elec.	Corvallis	Benton
Clifford Dunn	Mech.	Cloverdale	Tillamook
Clarence Herbert Eady	L. C.	Albany	Linn
Howard James Eberly	For.	La Grande	Union
Anna Leta Edington	H. S.	Helix	Umatilla
Jesse Boyd Edington	Mech.	Helix	Umatilla
Caryl Edwards	H. S.	Monroe	Benton
Hasel Edwards	H. S.	Monroe	Benton
Albert Ehlers	C. E.	Portland	Multnomah
Otto Herman Elmer	Agri.	Mulino	Clackamas
Archie Guy Erskine	Agri.	Lebanon	Linn
Alfred John Evans	Agri.	Mosier	Wasco
Fred George Evenden	Phar.	McMinnville	Yamhill
Karl William Farnsworth	Agri.	Heppner	Morrow
Roy Ferguson	Mech.	Pendleton	Umatilla
Alvin Finlay	Mech.	Portland	Multnomah
Henry Pervine Fisher	Agri	Haines	Baker
Paul Fisher	L. C.	Mt. Angel	Marion
Fritz William Fleischman	C. E.	Canyon City	Grant
Birdie Emeline Fletcher	H. S.	Ontario	Malheur
Robert Fletcher	Elec.	Ontario	Malheur
Nellie Evelyn Fletcher	L. C.	McCoy	Polk
Eliza Josephine Floyd	L. C.	Corvallis	Benton
Thomas Edward Foster	Phar.	Athena	Umatilla
Walter Allan Foster	Agri.	Prineville	Crook
Bradford Fowles	Elec.	Mount'ndale	Washington
Robert Pierce Francis	Min.	Athena	Umatilla
Earle Edward Freeman	C. E.	Portland	Multnomah
James Edward French	Agri.	Corvallis	Benton
Abner Jared Fuller	C. E.	Corvallis	Benton
Ruby Ethel Galloway	H. S.	Hillsboro	Washington
Fred Marion Gay	Mech.	Tipton, Iowa	
Roy Fred Ginther	Phar.	Dixon, Nebraska	
Raymond Chase Gleason	Mech.	Sumpter	Baker
Wallace Going	Elec.	Portland	Multnomah
John Benjamin Gooch	Phar.	Shelburn	Linn
Agnes Goodrich	H. S.	Dayton	Yamhill
Julius Gordon	Mech.	Portland	Multnomah
Elmer Ellsworth Goshorn	C. E.	Lents	Multnomah
Frank Earl Graham	Elec.	Houlton	Columbia
James William Graham	Mech.	Gardiner	Douglas
Ernest Elmar Gray	L. C.	Philomath	Benton
Bernard Mumford Greene	Elec.	Sumpter	Baker
James Harrison Haight	Mech.	Little Shasta, California	
Lorain Walter Haller	Elec.	Telocaset	Union
Edgar Brown Haley	Mech.	Hoquiam, Washington	
Harry Roy Hamilton	Agri.	Boyd	Crook

Roswell Byron Hamilton	Phar.	Burns	Harney
Orlando B. Hardy	Agri.	Bend	Crook
Robert Harlow	C. E.	Portland	Multnomah
Gretta Harrington	H. S.	Corvallis	Benton
Ralph B. Harrington	Elec.	Falls City	Polk
Lee Marion Harris	Mech.	Vale	Malheur
Willamette Harris	Agri.	Oregon City	Clackamas
Charles McFerrin Hartsock	Mech.	Albany	Linn
Elmo Yeaton Haskell	C. E.	Central Point	Jackson
Howard Harrison Haskell	Elec.	Portland	Multnomah
Vera Etta Haskell	H. S.	Port Orchard, Wash.	
William Dexter Haskell	Mech.	Port Orchard, Wash.	
Flora Hassett	H. S.	Garneill, Montana	
Cora Hawley	L. C.	Monroe	Benton
Bird Norman Hawley	Agri.	Star	Lane
Philo Benjamin Hawley	Agri.	Mineral	Lane
Herbert Thornton Heath	C. E.	McMinnville	Yamhill
Herman Emiel Hector	Elec.	Corvallis	Benton
Ruth Helliwell	Phar.	Yoncalla	Douglas
Lyle Vallington Hendricks	Phar.	McMinnville	Yamhill
Alice Bernice Henness	L. C.	Gates	Linn
William Albert Hensley	C. E.	Troutdale	Multnomah
Beulah Grace Hewitt	L. C.	Junction City	Lane
John Everard Hiatt	Agri.	Oregon City	Clackamas
John William Hiatt	L. C.	Heppner	Morrow
Faye Arementhy Hill	H. S.	Warrenton	Clatsop
Harry Douglas Hobson	Min.	Lyons	Linn
Ernest Holmberg	Elec.	Portland	Multnomah
Dolph Lucas Hooghkirk	Mech.	Rainier	Columbia
Mervin Herbert Horton	Phar.	Burns	Harney
Charles Houser	Phar.	Milwaukie	Clackamas
Claude Elgin Howard	L. C.	Bridal Veil	Multnomah
George Clarence Howard	Mech.	Bridal Veil	Multnomah
Merle George Howard	Phar.	Monroe	Benton
Chester Carl Howe	C. E.	Sheridan	Yamhill
Charles Hoyt	Mech.	Jefferson	Marion
Roy Alton Huber	Elec.	Scio	Linn
Myra Evangeline Hukill	H. S.	Corvallis	Benton
Zoa Irwin	H. S.	Estacada	Clackamas
Forrest Scott Ivanhoe	L. C.	La Grande	Union
Laura Estella Jackson	H. S.	Loraine	Lane
Clarence Lloyd Jamison	Min.	Portland	Multnomah
William Flavius Jamison	Elec.	Lewiston, Utah	
Russell Samuel Jeffrys	Min.	Nome, Alaska	
Andreas Marimus Jeppesen	Mech.	Bacona	Washington
George Layton Jett	Elec.	Baker City	Baker
Charles Johns	C. E.	The Dalles	Wasco

Alfin Johnson	C. E.	Seaside	Clatsop
Verne Lewis Johnson	L. C.	John Day	Grant
Zeta Alma Johnson	H. S.	Scio	Linn
George Howell Jones	Min.	Portland	Multnomah
Robert Henry Jones	Mech.	Denver, Colorado	
Jonas Jorstad	C. E.	Salem	Marion
Walter Keck	C. E.	Hammond	Clatsop
George Talbert Kelly	Min.	Greenhorn	Baker
Jean Marian Kent	H. S.	Lents	Multnomah
Leona Kerr	H. S.	Corvallis	Benton
John Frederick Ketels	Phar.	Clackamas	Clackamas
Ralph Adrian Keiser	Agri.	Spirit Lake, Iowa	
John George Kelly	Agri.	Eugene	Lane
Clyde Leslie Kiddle	L. C.	Island City	Union
Angie Charlotte Kyle	L. C.	Monroe	Benton
Arthur Ransom Kyle	Phar.	Monroe	Benton
Orr Belknap Kyle	Phar.	Monroe	Benton
Ada Mae Lay	L. C.	Joseph	Wallowa
Myrtle Edna Lay	H. S.	Molalla	Clackamas
Theodore Biggs LaCerte	Elec.	Lostine	Wallowa
Lester Lewis Leavitt	Elec.	Klamath Falls	Klamath
Lewin Bertran Lemon	L. C.	Grass Valley	Sherman
Helen Elizabeth Lewis	L. C.	Delwein, Iowa	
Harvey Jacob Lickel	For.	Spearfish, South Dakota	
Edward Rudolph H. Liebner	L. C.	Albany	Linn
Harry Arthur Lindgren	Agri.	Melrose	Douglas
Warren Lister	Elec.	Prineville	Crook
Harold Bond Looney	Agri.	Jefferson	Marion
Raymond Stewart Loosley	**Agri.**	Ft. Klamath	Klamath
Alfred Edwin Maneely	**Elec.**	Boise, Idaho	
Wynn George Manning	L. C.	St. Johns	Multnomah
Charles Marlin	**Mech.**	Hillsboro	Washington
Harold Dickson Marsh	Mech.	Portland	Multnomah
Gertrude Martin	H. S.	Olex	Gilliam
Arthur Blaine Mattley	Elec.	Corvallis	Benton
Alvin Mattson	C. E.	Astoria	Clatsop
Edith Virginia May	H. S.	Boise, Idaho	
Chris Elbert Mays	Phar.	Elgin	Union
Joseph Linzy McAllister	C. E.	North Yamhill	Yamhill
Melville Thomas McAllister	C. E.	North Yamhill	Yamhill
Margaret McCall	H. S.	Scio	Linn
Roy Calvert McCully	Min.	Joseph	Wallowa
Forrest William McGinnis	Agri.	Moro	Sherman
Iva Belle McGinnis	L. C.	Moro	Sherman
Earl Hope Davis McIntosh	Mech.	Portland	Multnomah
Leroy McKenzie	Elec.	Summerville	Union
Howard McLean	Elec.	Wallowa	Wallowa

Henry William McRobbie	Mech.	Leadville, Colorado	
Fred Robert Myer	L. C.	Salem	Marion
Lester Hawley Miles	C. E.	Portland	Multnomah
Edyth Eleanora Miller	L. C.	Drewsey	Harney
Fred Miller	Mech.	Montavilla	Multnomah
Fred Merle Miller	Elec.	Albany	Linn
George Henry Miller	Phar.	Corvallis	Benton
Rawla Arnold Miller	Elec.	Athena	Umatilla
Zoe Velma Miller	Phar.	Amity	Yamhill
John Guy Minton	Agri.	Monroe	Benton
John Rowland Mires	Elec.	Ellensburg, Washington	
Jay Mitchell	Elec.	Newberg	Yamhill
Henry Clay Montgomery	C. E.	Bridal Veil	Multnomah
Clifford Hartley Moore	Phar.	Portland	Multnomah
Harry Beaumont Moore	Phar.	Portland	Multnomah
Kate Irene Moore	L. C.	Echo	Umatilla
Otto Nelson Moore	Elec.	Portland	Multnomah
Ralph Barney Moore	Elec.	North Yakima, Wash.	
Bertha Viola Morgan	H. S.	Ione	Morrow
Ira Monroe Morgan	Agri.	Ione	Morrow
Clyde Martin Morris	L. C.	Newberg	Yamhill
Elroy Harvey Morris	Mech.	Pendleton	Umatilla
Clarence Shelley Murray	C. E.	North Yakima, Wash.	
Reuben George Murray	Mech.	Portland	Multnomah
Anda Clarence Murrow	Phar.	Oregon City	Clackamas
Charles Leroy Nelson	Mech.	Scappoose	Columbia
Lillian May Nelson	H. S.	Scappoose	Columbia
Ira Edward Newsom	Phar.	Portland	Multnomah
Samuel James Newson	Phar.	Prineville	Crook
Adolph Nilsson	For.	Portland	Multnomah
Gertrude Frances Nolan	L. C.	Corvallis	Benton
Joseph John Nys	L. C.	Mt. Angel	Marion
Arthur O'Connor	C. E.	Montague, California	
Sidney O'Connor	Agri.	Montague, California	
Robert Bracket Olp	Agri.	Prairie City	Grant
Bernhard Olsen	Elec.	Milwaukie	Clackamas
Dorris Eyfelle Olsen	H. S.	Warrenton	Clatsop
Earle Arney Olsen	L. C.	Warrenton	Clatsop
William Ost	C. E.	Portland	Multnomah
Wells Oviatt	Elec.	Buell	Polk
Merle Hannah Palmer	H. S.	Baker City	Baker
Ada Park	L. C.	Corvallis	Benton
Charles Beecher Park	Mech.	Corvallis	Benton
Lawrence William Park	Mech.	Corvallis	Benton
Harrison Lincoln Parker	Elec.	Fernhill	Clatsop
Thomas Reid Parsons	Phar.	North Yamhill	Yamhill
Blaine Patterson	Phar.	North Yamhill	Yamhill

William Glenn Patterson	Mech.	The Dalles	Wasco
Frank Richard Pendergrass	Elec.	Amity	Yamhill
Nona Pansy Peters	Phar.	Corvallis	Benton
Henry John Pfandhoefer	Elec.	Falls City	Polk
Fred Eugene Pernot	Elec.	Corvallis	Benton
Louis Clifton Perry	C. E.	Portland	Multnomah
Ivy Cecil Peterson	L. C.	Beaverton	Washington
Thomas Jefferson Pettit	Elec.	Monmouth	Polk
Lige Edward Phillips	Min.	Salem	Marion
Myra Belva Pierce	L. C.	Clear Lake, Iowa	
Ralph Hillar Pierce	Elec.	Harrisburg	Linn
Mary Lora Pigler	H. S.	Salem	Marion
Carrie Maude Pimm	H. S.	Philomath	Benton
Philip Ray Poff	C. E.	St. Johns	Multnomah
Ralph Victor Poindexter	Phar.	Prineville	Crook
Elmo Rex Porter	Elec.	Ephrata, Washington	
Fred Porter	C. E.	Portland	Multnomah
John Frederic Porter	L. C.	Medford	Jackson
Phillip Porter	Mech.	St. Johns	Multnomah
Herman Lair Prather	Mech.	Buena Vista	Polk
Minnie Price	H. S.	Kings Valley	Benton
Herman Prinz	Elec.	The Dalles	Wasco
Irving Province	L. C.	Mitchell	Wheeler
Emma Augusta Purdy	H. S.	Gaston	Washington
Clifford Wayne Raber	Agri.	Corvallis	Benton
Elta Marie Raber	H. S.	Corvallis	Benton
Helen Lavina Raber	H. S.	Corvallis	Benton
Cecil Gladys Rafferty	H. S.	Cornelius	Washington
Alvin Lester Raines	C. E.	Lacomb	Linn
Boyce Rawlins	C. E.	Salt Lake City, Utah	
Leo Walter Reber	L. C.	Troutdale	Multnomah
Marcella Reed	H. S.	La Grande	Union
Effie Ethel Reel	L. C.	Joseph	Wallowa
Lena Nettie Reichstein	H. S.	Dayton	Yamhill
Thomas Reierson	Mech.	Portland	Multnomah
Earl James Rhea	Mech.	Ione	Morrow
Lester Clifford Rhodes	Min.	Independence	Polk
Denzel Lee Ridgeway	Mech.	Buell	Polk
Lillie Riggs	Phar.	Vancouver, Washington	
Emory Douglas Roberts	C. E.	Gresham	Multnomah
Ray Harland Roberts	Agri.	Lebanon	Linn
Lloyd Loyal Robinson	Elec.	Portland	Multnomah
Henry Rooper	Min.	Antelope	Wasco
Donald Hefley Rowe	Min.	Portland	Multnomah
Cecile Rowland	H. S.	Shedds	Linn
LeRoy Comstock Rulifson	C. E.	Portland	Multnomah
Lawrence George Russell	C. E.	Wessington Spgs., S. D.	

Fred Henry Schenk	Phar.	McMinnville	Yamhill
Robert Schulz	C. E.	Vancouver, Washington	
Floyd Willis Scott	Agri.	Milwaukie	Clackamas
Ralph Seely	Elec.	Woodburn	Marion
Oliver Park Seim	Mech.	Astoria	Clatsop
Marcia Mae Selleck	L. C.	Boyd	Wasco
Obil Shattuck	C. E.	Ft. Klamath	Klamath
Roy Leon Shaw	Agri.	Sumpter	Baker
Merrell William Shoemaker	Phar.	Union	Union
Jessie John Siemens	L. C.	Klamath Falls	Klamath
Charles Sitton	Agri.	Carlton	Yamhill
*Orba Sitton	H. S.	Carlton	Yamhill
Otto D. Sitton	Agri.	Carlton	Yamhill
Hiram Chester Smith	C. E.	Newberg	Yamhill
Lester Charles Smith	C. E.	Grays River, Washington	
Philip Smith	Min.	Portland	Multnomah
William Henry Spence	Elec.	Island City	Union
Edison Blaine Stanley	Elec.	Lone Rock	Gilliam
Tracy McWilliam Starr	Mech.	Bellfountain	Benton
Noble Dunshee Stearns	Mech.	Portland	Multnomah
Winlock William Steiwer	Agri.	Jefferson	Marion
Stanley Stevenson	Phar.	Halsey	Linn
Fred Alphonso Stinchfield	Agri.	Mayville	Gilliam
William Thomas Stratton	Phar.	Clear Lake, Utah	
Fred Jacob Stutz	C. E.	Redwood, California	
Lester Eugene Stutz	Elec.	Redwood City, California	
John Wyatt Surry	Agri.	Lyons	Linn
Margaret Nellie Sutherland	H. S.	Shedds	Linn
Samuel Pliney Sutton	Elec.	Portland	Multnomah
Fred Marshal Suver	Elec.	Suver	Polk
Lawrence Edgar Swan	C. E.	Hubbard	Marion
George Wesley Thiessen	Elec.	Milwaukie	Clackamas
Elmer Thomas	For.	La Grande	Union
George Henry Thomas	Agri.	Dee	Wasco
Charles Claude Thompson	Agri.	Hood River	Wasco
Frank Wilson Thompson	Min.	Burns	Harney
James Jay Thompson	Agri.	Macleay	Marion
Aura Amarillas Thomson	H. S.	Echo	Umatilla
David Sloan Thomson	Agri.	Echo	Umatilla
William Roy Tompkins	Mech.	Athena	Umatilla
Benjamin Blaine Totten	For.	Corvallis	Benton
Joseph Eric Tracy	C. E.	Lakeview	Lake
George Robert Tripp	Mech.	Hood River	Wasco
Stanley Everett Tripp	Min.	Hood River	Wasco
Leighton Jay True	Agri.	Mason City, Iowa	

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*Deceased.

Clifford Turner	Mech.	Pendleton	Umatilla
Lawrence Alhanion Turpen	Mech.	Hillsboro	Washington
Cap Howard Tuttle	Phar.	Summerville	Union
Willa Mabel Tuttle	Phar.	Summerville	Union
Albert Henry Utzinger	C. E.	Seaside	Clatsop
Laura Elsie VanMeter	H. S.	Hoskins	Benton
William N. Vanvolkinburgh	Phar.	Clatskanie	Columbia
John Vincent	Phar.	Sherwood	Washington
Otto George Voss	Mech.	Astoria	Clatsop
Nina Ramona Wall	H. S.	Ashland	Jackson
Ray Marcus Waltz	Phar.	Monroe	Benton
Edna Bernice Watkins	L. C.	Corvallis	Benton
Arthur Marion Weatherford	L. C.	Dayton, Washington	
Ora Weaver	L. C.	Myrtle Creek	Douglas
Lincoln Ward Wheeler	Agri.	San Diego, California	
George Ernest Whitcomb	Min.	Foster	Linn
Fred Harley Wilcox	Agri.	Oregon City	Clackamas
Alice Edna William	H. S.	Tedora, South Dakota	
Edith May Williams	H. S.	Harrisburg, Texas	
Theof Henry Williams	L. C.	Harrisburg, Texas	
Mabel Gertrude Williamson	H. S.	Wells	Benton
Amos Rex Willits	Agri.	Persist	Jackson
Erwin Thomas Wills	Agri.	Milwaukie	Clackamas
Arthur James Wilson	Mech.	Brownsville	Linn
Frank Earl Wilson	Elec.	Klamath Falls	Klamath
Glenna Wilson	Phar.	Mt. Hood	Wasco
William David Winniford	C. E.	Wren	Benton
Earl Withycombe	C. E.	Corvallis	Benton
Carl Wolff	Mech.	Portland	Multnomah
Ira Daniel Wonderly	Agri.	Rainier	Columbia
Frank Wilbur Wright	Elec.	Portland	Multnomah
Donald Worthington Yantis	Phar.	Salem	Marion
Joseph Benjamin Yoder	Mech.	Hubbard	Marion
Dorris Shelby Young	Agri.	Sherwood	Washington
George Zimmerman	Agri.	North Yamhill	Yamhill

SUB-FRESHMEN:

Ilse Dorothea Ahlers	Push	Clatsop
Lawrence Aldrich	Dallas	Polk
Nellie Lois Allen	Shedds	Linn
Carl Nathaniel Anderson	Portland	Multnomah
Isaac Milton Compton Anderson	Monument	Grant
Samuel Hubbell Arbuthnot	Portland	Multnomah
William Anthony Armstrong	Corvallis	Benton
Walter McClure Babb	Mayville, Arkansas	
Arthur Henry Ball	Beaverton	Washington
Alvin Lee Barton	Joseph	Wallowa

Roy Arthur Baynard	Silverton	Marion
Frank James Beach	Hillsboro	Washington
Orville Simpson Beckley	Elkton	Douglas
Frank Ross Beeson	Mayville	Gilliam
Lloyd Vernon Bell	Baker City	Baker
Elsie Mary Bevens	Airlie	Polk
Clifford Howard Blakely	Pendleton	Umatilla
Fred Blinn	Prairie City	Grant
James Charles Boner	Silverton	Marion
Sadie Boner	Silverton	Marion
Harvey Wilbur Bradley	Beaverton	Washington
Fred Breithaupt	Clackamas	Clackamas
John Breuer	Myrtle Point	Coos
Clarence Brooks	Corvallis	Benton
James Grover Brown	Myrtle Point	Coos
Robert Walton Brown	Drewsey	Harney
Clyde Arthur Browning	Latourelle Falls,	Multmh
Donald Keith Carr	Sauvies Island,	Columbia
Charles Edward Carville	Kimberley, California	
Richard Lemuel Casteel	Pilot Rock	Umatilla
William Mackie Chalmers	Hillsboro	Washington
Ross Chamberlain	Suver	Polk
Huron Willoughby Clough	Canyonville	Douglas
Hubert Melville Colvig	Canyonville	Douglas
Alfred Raymond Compton	Scio	Linn
Ralph Jack Cresswell	Pendleton	Umatilla
Lester Ray Cypher	Cornelius	Washington
Stowell Fred Dawson	Albany	Linn
Earl Fred DeLashmutt	McMinnville	Yamhill
Victor Clair DeLashmutt	McMinnville	Yamhill
Ellis Samuel Dement	Myrtle Point	Coos
Lester Thomas Dement	Myrtle Point	Coos
Blanche Loraine Dinges	Albany	Linn
Harry Dinges	Albany	Linn
Lila Grace Dobell	Blackfoot, Idaho	
Maurice Edgar Dorfman	Portland	Multnomah
Verda Laveta Dorsey	Dayton	Yamhill
Lester Ellis	Rainier	Columbia
Tony Ellison	Portland	Multnomah
James Evenden	McMinnville	Yamhill
Jesse Ray Fleming	Bakeoven	Wasco
Clay Freeman	Hillsboro	Washington
Page Eugene Gardner	Cornelius	Washington
William Moore Getty	Buena Vista	Polk
Mahlon Bruce Gilbert	Pilot Rock	Umatilla
Harry Gill	Salem	Marion
Charley Graves	Odell	Klamath

Frederick Newton Graves	Sheridan	Yamhill
Ora Smith Hamilton	Burns	Harney
Fred Eric Hansen	Kerby	Josephine
Ida Elizabeth Hensen	Kerby	Josephine
Chancy Harrington	Corvallis	Benton
Charles Dolen Hatfield	Melrose	Douglas
Grace Hawley	Monroe	Benton
Ralph Victor Hawley	Star	Lane
Herbert Otto Heidel	Elsie	Clatsop
Albert Helliwell	Yoncalla	Douglas
Lena Helliwell	Yoncalla	Douglas
George Prentice Hicinbothom	Oregon City	Clackamas
Tom Walter Holman	Salem	Marion
Floyd Homer Howard	Malheur	Malheur
Raymond Howell	Holbrook	Multnomah
Chauncey Mulks Hubbard	Hillsdale	Multnomah
William Monroe Hull	Crawfordsville	Linn
Floyd Jurry Huntley	Gold Beach	Curry
Gladys Myrtle Jackson	Shedds	Linn
Franklin Blair Jones	Pendleton	Umatilla
Roy Belding Knapp	Camas, Washington	
Chester DeBolt Lafferty	Corvallis	Benton
John Ammons Langford	Salem	Marion
Lloyd Pulley Lowe	Bullrun	Clackamas
Floyd Marquis	Eugene	Lane
Maurice Marquis	Eugene	Lane
Ralph McCulloch	Donnellson, Iowa	
Henry Jones McIntosh	Seaside	Clatsop
Charles Grant McLaughlin	Independence	Polk
Hallie Arland McMurphy	Hillsdale	Washington
Floyd Clare Meyer	Dallas	Polk
William Miles	Lostine	Wallowa
Raymond Henry Mitchell	Creswell	Lane
George Furman Neefus	Portland	Multnomah
Ivar Emanuel Nelson	Ione	Morrow
Thorvald Henry Nelson	Hood River	Wasco
Walter Lincoln Nelson	Scappoose	Columbia
Rufus Kelsey Ordway	Hood River	Wasco
Henry Otley	Lawen	Harney
Archie Peppin	Chitwood	Lincoln
Esther Penrose	Amity	Yamhill
Desire Joseph Perard	Pendleton	Umatilla
Benjamin William Perkins	Drain	Douglas
Roy Monroe Phillips	North Yakima, Wash.	
Fred Plympton	Portland	Multnomah
Lawrence Aubrey Prescott	Toledo	Lincoln
Nash William Quinlan	Portland	Multnomah

Frank Randall		Olex	Gilliam
Harrison Morton Roberts		Eugene	Lane
Stephen Arlie Roberts		Eugene	Lane
David Robinson		Portland	Multnomah
George Sand		Portland	Multnomah
George Sauervein		Columbia City	Columbia
Emerson Monroe Scarbrough		Creswell	Lane
James Alexander Selleck		Boyd	Wasco
Orville Hammond Sheets		Baker City	Baker
John Schermer		Pleasant Hill	Lane
Arnold Dorn Schmidt		Gresham	Clackamas
Herbert Alfred Schroeder		Niagara	Linn
Guy Shadduck		Heppner	Morrow
Woodson Eugene Slater		Salem	Marion
William Barlow Sloan		Hood River	Wasco
Warren Lee Smith		Fairview, Nevada	
Julius Spees		Oregon City	Clackamas
George Thomas Startzoff		Sitka, Alaska	
William Stimson		Amity	Yamhill
Fred William Taylor		Aims	Clackamas
Lawrence Larston Taylor		Elmira	Lane
Lillian Thacker		Tangent	Linn
Jennie Olympia Totten		Corvallis	Benton
Manly Underhill		Summit	Benton
Emma Alvina Vick		Molalla	Clackamas
Paul Emil Wagner		Portland	Multnomah
Jesse Duton Walling		Salem	Marion
Gust Peter Wanstrom		Fishhawk	Clatsop
Paul Raleigh Watson		Battle Ground, Wash.	
Effie Weaver		Myrtle Creek	Douglas
Floyd Dement Weaver		Myrtle Creek	Douglas
Orrin Roy West		Mt. Tabor	Multnomah
Salvert Sylvester Whalley		Portland	Multnomah
Stella Kathryn Williamson		Albany	Linn
Carl Windom		Culver	Crook
Harry Earl Windom		Culver	Crook
Lorena Anna Wirt		Oysterville, Washington	

SPECIALS:

Caroline Elizabeth Alexander	H. S.	Stayton	Marion
Josephine Vilott Anderson		Monument	Grant
Bert Cleveland Baker		Grass Valley	Sherman
Jennie Berland		Enterprise	Wallowa
Katherine Berland	L. C.	Enterprise	Wallowa
Estella Bloch	H. S.	La Grande	Union
Leona Edna Boner		Joseph	Wallowa
Greta Edna Bristow		Monroe	Benton

Lizzie May Buchanan	H. S.	Corvallis	Benton
Cora Belle Carter		Ashland	Jackson
William Burson Cate	Agri.	Hillsboro	Washington
Alice Marie Cathey		Corvallis	Benton
Chester McCorckle Coffey		McMinnville	Yamhill
Waldo Colbert	Min.	Fayette, Iowa	
Audrey Belle Combes		Enterprise	Wallowa
Ada Leeina Compton	H. S.	Crabtree	Linn
Gretchen Cormany		St. Johns	Multnomah
O. B. Corpron		McMinnville	Yamhill
Irene Helen Curran		Portland	Multnomah
Georgia Beatrice Davis		Farley, Iowa	
Ethel Maude Downer		Corvallis	Benton
Maude Erben Draper		Greenhorn	Baker
William Connell Dyer		Salem	Marion
Sarah Clarke Dyer	L. C.	Salem	Marion
Mary Lillian Earnest		Vernon	Lincoln
Dollie Fouts	H. S.	Clatskanie	Columbia
Ruby Fowells	H. S.	Fayette, Iowa	
Myrtie Annie Belle Hartsock	H. S.	Albany	Linn
Adelaide Florence Henri	H. S.	Portland	Multnomah
Alma Pearl Hershberger		Woodburn	Marion
Edith Hess	H. S.	Prairie City	Grant
Golda Ethyl Howard		Monroe	Benton
Jessie Imbler	L. C.	Enterprise	Wallowa
Blanche Jeffrys		Portland	Multnomah
Queen Inez Johnson		Corvallis	Benton
Myrth Jorstad		Salem	Marion
Vera Kayler	H. S.	Molalla	Clackamas
Agnes Marie Langer	L. C.	Sherwood	Washington
Esther Vestal Leech		Woodburn	Marion
Ielleem Allanna Leech		Woodburn	Marion
George Lloyd Lounsberry		Portland	Multnomah
Michael Markel	Phar.	Mahall, North Dakota	
Perry Harlan McAlexander	Agri.	Mt. View, California	
Gertrude Alice McBee		Corvallis	Benton
Edmund Dayton MacCall	Agri	Hermon, California	
Ethel Lucretia McKennon	L. C.	La Grande	Union
Mabel Isadore Moore		Echo	Umatilla
Inez Cleo Munkers	H. S.	Scio	Linn
Laura Frances Pratt		Mound City, Missouri	
Ruby Ailene Rice		Clear Lake, Iowa	
Vena Rickard		Corvallis	Benton
John Rooper	Agri.	Antelope	Wasco
Grayce Mae Rose		Phoenix	Jackson
Ira Lewis Rowe	Agri.	Corvallis	Benton
Fred Russell		Oakland	Douglas

William Cameron Shepard		Mecca, California	
Eugenia Helen Smith		Turner	Marion
Genevieve Lucile Smith		Corvallis	Benton
Mulk Raj Soi		Batala, India	
Edith Madeline Sproat	H. S.	Hood River	Wasco
Daniel Sutherland	Agri.	Shedds	Linn
Nellie Irene Taylor	H. S.	Corvallis	Benton
Madge Thomas		Blodgett	Benton
Maude Ethel Thompson		Macleay	Marion
Ora May Wilson	H. S.	Corvallis	Benton
Winona Woodward	H. S.	Corvallis	Benton
Alda Elfelta Young	H. S.	Tygh Valley	Wasco

MUSIC ONLY:

Beatrice Baker	Junction City	Linn
Janet Blackledge	Corvallis	Benton
Myrtle Burnap	Corvallis	Benton
Ruby Cadle	Prineville	Crook
Carrie Agnes Danneman	Clem	Gilliam
Iva Ellston	Bluffton, Indiana	
Harry Garrett	Hubbard	Clackamas
Anna Grace Gill	Scio	Linn
Imogene Gill	Scio	Linn
Mrs. L. W. Haller	Telocaset	Union
Mrs. Della Jones	Corvallis	Benton
Faith Keezel	Philomath	Benton
Lynette Kerr	Corvallis	Benton
Hazel Merryman	Philomath	Benton
Bertha Witman	Lebanon	Linn
Alta Wright	Philomath	Benton
Gladys Rice	Clear Lake, Iowa	
Lawrence Skipton	Corvallis	Benton
Lela Wilson	La Grande	Union
Lottie Wilson	Mt. Hood	Wasco

SHORT WINTER COURSES—DAIRYING:

J. F. Bartu	Crabtree	Linn
R. E. Brague	Corvallis	Benton
C. L. Bunn	North Yamhill	Yamhill
Alvah Custer	Coquille	Coos
W. J. Domes	McCoy	Polk
D. H. Fleming	Salem	Marion
W. H. Foster	Jewell	Clatsop
F. A. Friedrich	Aurora	Marion
Otto Friedrich	Aurora	Marion
A. L. Gile	Ilwaco, Washington.	
V. W. Gilkey	Port Orchard, Wash.	

C. P. Jaquith	Laurel	Washington
Chester Johns	Glendale	Douglas
Norman Knight	Salem	Marion
Edith N. Knox	Eugene	Lane
G. S. Mangle	Alsea	Lincoln
E. C. Martin	Skamokawa, Washington	
C. S. Ohmart	Salem	Marion
F. H. Pottratz	Mt. Angel	Marion
Ralph Pyritz	Gardiner	Douglas
Rasmus Rasmussen	Junction City	Lane
C. C. Robison	Arago	Coos
Mrs. R. L. Scoggin	Laidlaw	Crook
C. V. Schrack	Tangent	Linn
Alfred Smith	Coquille	Coos
H. S. Smith	Newberg	Yamhill
R. N. Williamson	Wells	Benton
Mrs. S. A. Yoakum	Marshfield	Coos

GENERAL AGRICULTURE:

H. V. Cleveland	Salem	Marion
George DeBok	Oregon City	Clackamas
Clay Gilbert	Corvallis	Benton
E. J. Peterson	Attica, Kansas	
R. P. Rasmussen	Corbett	Multnomah
Jasper Smith	Corvallis	Benton
E. J. Stepanek	Crabtree	Linn
W. M. Elliott	Dallas	Polk
Jas. H. Albert	Salem	Marion
H. R. Tyler	Lents	Multnomah
Chas. A. Park	Salem	Marion
J. O. Jorstad	Corvallis	Benton
H. L. French	Corvallis	Benton
L. L. Brooks	Corvallis	Benton
Walter K. Taylor	Corvallis	Benton
Frank A. Pierce	Corvallis	Benton
C. S. Dow	Astoria	Clatsop
Mrs. W. J. Edwards	Mayville	Gilliam
W. J. Edwards	Mayville	Gilliam
R. E. Burger	Corvallis	Benton
Otto J. Wilson	Salem	Marion
W. K. Newell	Gaston	Washington
J. H. Reid	Milwaukie	Clackamas
Harold Rumbaugh	Albany	Linn
A. C. Goodrich	North Yamhill	Yamhill
—. Harris	Forest Gve.	Washington
C. E. Roberts	Albany	Linn

E. C. Armstrong	Salem	Marion
—. Holaday	Corvallis	Benton
Mrs. Harold Rumbaugh	Albany	Linn

HORTICULTURE.

Clarence B. Armstrong	Salem	Marion
E. M. Johnson	Engene	Lane
P. D. Linn	Estacada	Clackamas
Chas. T. Thomas	Dee	Wasco
J. Beebe	Eugene	Lane
B. H. Pryor	Wilbur	Douglas
W. R. Palmer	Victoria, Brit. Columbia.	
J. L. Roberts	Brooklyn, New Jersey.	
J. D. Bryant	Albany	Linn
Clara L. Webb	Troutdale	Multnomah
Jonas Dahlin	Mercer	Lane
George N. Creswell	Portland	Multnomah

MECHANIC ARTS:

Arthur M. Arneson	Myrtle Point	Coos
Peter F. Beach	Astoria	Clatsop
Frank Dennis	Corvallis	Benton
J. D. Marshall	Mulina	Clackamas
J. H. Dorsey	Alsea	Benton
Henry Hoffman	Bacona	Washington
Charles V. Knox	Eugene	Lane
Henry Stepanck	Crabtree	Linn
Ray Typper	Hillsboro	Washington
David Waterhouse	Clatsop	Clatsop
John Pimm	Philomath	Benton

HOUSEHOLD SCIENCE:

Lois Ohmart	Salem	Marion
Maude Titus	Kingston	Linn
Mrs. J. H. Albert	Salem	Marion
Mrs. Mary Park	Salem	Marion
Mrs. Lulu Wilson	Corvallis	Benton
Sarah Jacobs	Corvallis	Benton
Pauline Kline	Corvallis	Benton
Carrie Danneman	Corvallis	Benton
Mrs. W. H. Savage	Corvallis	Benton
Mrs. Anna Sheddrick	Corvallis	Benton
Mrs. R. Selling	Corvallis	Benton
Mrs. C. M. McKellips	Corvallis	Benton
Mrs. Walter Wiles	Corvallis	Benton
Mrs. H. S. Pernot	Corvallis	Benton

Mrs. H. D. Scudder	Corvallis	Benton
Mrs. Florence Taillandier	Corvallis	Benton
Mrs. Laura Adams	Corvallis	Benton
Mrs. P. T. Starr	Corvallis	Benton
Mrs. H. W. Kaupisch	Corvallis	Benton
Mrs. R. H. Huston	Corvallis	Benton
Mrs. H. E. Leeper	Corvallis	Benton
Mrs. A. S. Shadduck	Corvallis	Benton
Mrs. E. F. Pernot	Corvallis	Benton
Mrs W. H. McMahon	Corvallis	Benton
Mrs. G. R. Farra	Corvallis	Benton
Mrs. Etta F. Lee	Corvallis	Benton
Mrs. J. A. Harper	Corvallis	Benton
Mrs. E. C. Cochran	Corvallis	Benton
Bertha Davis	Corvallis	Benton

RECAPITULATION.

	Men.	Women.	Class Total.	Dept. Total.
Graduates	10	5	...	15
Seniors:				
Agriculture	8	...	8	
Household Science	..	12	12	
Mechanical Engineering	9	...	9	
Electrical Engineering	16	...	16	
Mining Engineering	6	...	6	
Civil Engineering	4	...	4	
Pharmacy	10	1	11	
Literary Commerce	7	7	14	
Total Seniors				80
Juniors:				
Agriculture	8	...	8	
Household Science	..	9	9	
Mechanical Engineering	4	...	4	
Electrical Engineering	27	...	27	
Mining Engineering	3	...	3	
Civil Engineering	5	...	5	
Pharmacy	4	...	4	
Literary Commerce	7	4	11	
Total Juniors				71
Sophomores:				
Agriculture	24	...	24	
Household Science	..	27	27	
Mechanical Engineering	17	...	17	
Electrical Engineering	30	...	30	
Mining Engineering	20	...	20	
Civil Engineering	19	...	19	
Pharmacy	11	3	14	
Literary Commerce	7	14	21	
Forestry	5	...	5	
Total Sophomores				177
Freshmen:				
Agriculture	60	...	60	
Household Science	..	60	60	
Mechanical Engineering	57	...	57	
Electrical Engineering	63	..	63	
Mining Engineering	18	...	18	
Civil Engineering	47	...	47	
Pharmacy	41	8	49	
Literary Commerce	30	24	54	
Forestry	5	...	5	
Total Freshmen				413
Sub-Freshmen	123	18	...	141
Specials	16	51	...	67
Music only	2	18	...	20
Winter Courses	75	35	...	110
Summer Course in Agriculture	23	40	...	63
Total	821	336	...	1157
Counted twice	1	...	...	1
Total number of students	820	336	...	1156

STUDENTS CLASSIFIED BY COURSES OF STUDY.

Agriculture:		
Graduates	3	
Seniors	8	
Juniors	8	
Sophomores	24	
Freshmen	60	
Dairying—Winter Course	28	
Summer Course in Agriculture	63	
General Agriculture—Winter Course	30	
Horticulture—Winter Course	12	
Special	6—	242
Forestry:		
Sophomores	5	
Freshmen	5—	10
Household Science:		
Graduates	2	
Seniors	12	
Juniors	9	
Sophomores	27	
Freshmen	60	
Household Science—Winter Course	29	
Special	16—	155
Civil Engineering:		
Graduates	1	
Seniors	4	
Juniors	5	
Sophomores	19	
Freshmen	47—	76
Electrical Engineering:		
Graduates	1	
Seniors	16	
Juniors	27	
Sophomores	30	
Freshmen	63—	137
Mechanical Engineering:		
Graduates	1	
Seniors	9	
Juniors	4	
Sophomores	17	
Freshmen	57	
Mechanical Engineering—Winter Course	11—	99
Mining Engineering:		
Graduates	2	
Seniors	6	
Juniors	3	
Sophomores	20	
Freshmen	18	
Special	1—	50
Literary Commerce:		
Seniors	14	
Juniors	11	
Sophomores	21	
Freshmen	54	
Special	5—	105
Pharmacy:		
Graduates	1	
Seniors	11	
Juniors	4	
Sophomores	14	
Freshmen	49	
Special	1—	80
Sub-Freshmen		141
Graduates, Special		4
Specials		38
Music		20
Total		1157
Counted twice		1
Total number of students		1156

STUDENTS CLASSIFIED BY COUNTIES, STATES, AND FOREIGN COUNTRIES.

Baker	20	Lincoln	11
Benton	198	Linn	79
Clackamas	47	Malheur	12
Clatsop	23	Marion	60
Columbia	14	Morrow	22
Coos	13	Multnomah	127
Crook	12	Polk	37
Curry	3	Sherman	7
Douglas	25	Tillamook	5
Gilliam	11	Union	35
Grant	9	Umatilla	26
Harney	13	Wasco	41
Jackson	11	Washington	56
Josephine	4	Wheeler	2
Klamath	15	Wallowa	17
Lake	7	Yamhill	52
Lane	28		

Number of counties in Oregon	33
Total number of counties represented	33
Whole number of students from Oregon	1042
Arkansas	1
Alaska	3
California	16
Colorado	2
Idaho	10
Indiana	2
Iowa	15
Kansas	1
Michigan	1
Missouri	2
Montana	1
Nebraska	7
Nevada	1
New Jersey	1
North Dakota	1
South Dakota	3
Texas	2
Utah	4
Washington	35
Wyoming	1
British Columbia	1
India	4
Total	1156

COMPARATIVE STATEMENT OF ENROLLMENT.

Year.	*Music, Special.*	*Preparatory.*	*Freshmen.*	*Sophomores.*	*Juniors*	*Seniors*	*Graduate Students.*	*Special.*	*Dairying.*	*Total.*
1888–1889..	....	36	33	14	14	0	0	0	....	97
1889–1890..	....	67	55	17	6	0	6	0	....	151
1890–1891..	....	76	83	24	15	0	3	0	....	201
1891–1892..	....	86	63	28	19	9	3	0	....	208
1892–1893..	....	98	123	31	18	7	5	0	....	282
1893–1894..	....	36	103	71	21	5	4	0	....	240
1894–1895..	....	47	85	64	52	13	0	0	....	261
1895–1896..	....	80	175	63	54	9	14	2	....	397
1896–1897..	....	*Sub-*	157	80	29	17	11	22	....	316
1897–1898..	....	*Fresh-*	151	75	45	26	15	24	....	336
1898–1899..	....	*men.*	164	79	30	36	15	14	....	338
1899–1900..	....	42	145	74	40	36	20	48	....	405
1900–1901..	....	44	177	72	42	37	9	55	....	436
1901–1902..	14	38	247	83	30	38	10	28	....	488
1902–1903..	21	54	232	97	40	36	12	32	17	541
1903–1904..	48	85	191	80	46	39	3	28	10	530
1904–1905..	29	75	304	97	36	49	11	33	46	680
1905–1906..	50	110	293	104	46	49	18	37	28	735
1906–1907..	32	132	327	136	46	66	14	24	56	833
*1907–1908	20	141	413	177	71	80	15	67	173	1157

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COMPARATIVE STATEMENT OF ENROLLMENT.

Year.	*Music, Special.*	*Preparatory.*	*Freshmen.*	*Sophomores.*	*Juniors*	*Seniors*	*Graduate Students.*	*Special.*	*Dairying.*	*Total.*
1888–1889..	....	36	33	14	14	0	0	0	....	97
1889–1890..	....	67	55	17	6	0	6	0	....	151
1890–1891..	....	76	83	24	15	0	3	0	....	201
1891–1892..	....	86	63	28	19	9	3	0	....	208
1892–1893..	....	98	123	31	18	7	5	0	....	282
1893–1894..	....	36	103	71	21	5	4	0	....	240
1894–1895..	....	47	85	64	52	13	0	0	....	261
1895–1896..	....	80	175	63	54	9	14	2	....	397
1896–1897..	....	*Sub-Freshmen.*	157	80	29	17	11	22	....	316
1897–1898..	....		151	75	45	26	15	24	....	336
1898–1899..	....		164	79	30	36	15	14	....	338
1899–1900..	....	42	145	74	40	36	20	48	....	405
1900–1901..	....	44	177	72	42	37	9	55	....	436
1901–1902..	14	38	247	83	30	38	10	28	....	488
1902–1903..	21	54	232	97	40	36	12	32	17	541
1903–1904..	48	85	191	80	46	39	3	28	10	530
1904–1905..	29	75	304	97	36	49	11	33	46	680

the year in all courses is 1156.

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* The number of students listed under Dairying include all those who were registered in the short courses in Agriculture. The total registration for the year in all courses is 1156.

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View

CATALOGUE

OF THE

Oregon Agricultural College

FOR

1909-1910

With List of Students for 1908-1909

CORVALLIS, OREGON

PUBLISHED BY THE COLLEGE
MAY, 1909

CALENDAR

1909

JULY

S	M	T	W	T	F	S
				1	2	3
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1910

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22	23	24	25	26	27	28
29	30	31				

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12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

CALENDAR 1909-1910

1909.

July 14, Wednesday—Annual meeting of Board of Regents.

September 24-25-27, Friday, Saturday, Monday—Registration days.

September 24-25, Friday, Saturday—Examinations for admission.

September 28, Tuesday—Recitations begin.

November 24-30, Wednesday noon to Tuesday—Thanksgiving recess.

December 22, Wednesday noon—Christmas vacation begins.

1910.

January 4, Tuesday—Exercises resumed.

January 4, Tuesday—Winter course in Household Science and Art begins.

January 4, Tuesday—Winter course in Mechanic Arts begins.

January 4-8, Tuesday to Saturday—Farmers' week.

January 5, Wednesday—Meeting Board of Regents.

January 10, Monday—Winter course in Horticulture begins.

January 10, Monday—Winter course in Dairying begins.

January 10, Monday—Winter course in General Agriculture begins.

February 11, Friday—First semester ends.

February 14, Monday—Second semester begins.

February 22, Tuesday—Washington's Birthday; legal holiday.

April 7-12, Thursday noon to Tuesday—Easter recess.

May —, Military Inspection Day.

May 30, Monday—Decoration Day; legal holiday.

June 11, Saturday (evening)—Commencement concert by School of Music.

June 12-15, Sunday to Wednesday—Commencement week.

BOARD OF REGENTS

OF THE

OREGON AGRICULTURAL COLLEGE

AND

EXPERIMENT STATION.

OFFICERS.

Hon. J. K. Weatherford, *President*........................Albany
Hon. E. E. Wilson, *Secretary*........................Corvallis
Hon. B. F. Irvine, *Treasurer*........................Portland

EX-OFFICIO MEMBERS.

Hon. F. W. Benson, *Governor and Secretary of State*......Salem
Hon. J. H. Ackerman, *Supt. of Public Instruction*..........Salem
Hon. Austin T. Buxton, *Master of State Grange*....Forest Grove

APPOINTED BY THE GOVERNOR.

TERM EXPIRES.

Hon. John D. Olwelll......................Central Point, 1912
Hon. William W. Cotton......................Portland, 1912
Hon. Walter M. Pierce......................La Grande, 1912
Mrs. Clara H. Waldo......................Macleay, 1915
Hon. E. E. Wilson......................Corvallis, 1915
Hon. B. F. Irvine......................Portland, 1915
Hon. J. T. Apperson......................Parkplace, 1918
Hon. J. K. Weatherford......................Albany, 1918
Hon. C. L. Hawley......................McCoy, 1918

STANDING COMMITTEES
OF THE
BOARD OF REGENTS

EXECUTIVE COMMITTEE.

J. K. Weatherford, *Chairman;* J. T. Apperson, E. E. Wilson, W. W. Cotton, Austin T. Buxton.

FINANCE COMMITTEE.

J. T. Apperson, *Chairman;* A. T. Buxton, W. M. Pierce.

COLLEGE COMMITTEE.

B. F. Irvine, *Chairman;* W. M. Pierce.

STATION COMMITTEE.

W. M. Pierce, *Chairman;* J. D. Olwell, W. W. Cotton.

INSTITUTE COMMITTEE.

A. T. Buxton, *Chairman;* Clara B. Waldo.

OFFICERS OF ADMINISTRATION AND INSTRUCTION

(Arranged in Groups in the Order of Seniority of Appointment.)

ADMISISTRATIVE COUNCIL.

WILLIAM JASPER KERR, D. Sc.,
PRESIDENT.

JAMES WITHYCOMBE, M. Agr.,
DIRECTOR OF THE EXPERIMENT STATION,
Professor of Animal Husbandry.

ARTHUR BURTON CORDLEY, M. S.,
DEAN OF THE SCHOOL OF AGRICULTURE,
Professor of Zoology and Entomology.

GRANT ADELBERT COVELL, M. E.,
DEAN OF THE SCHOOL OF ENGINEERING AND MECHANIC ARTS.
Professor of Mechanical Engineering.

JULIET GREER, A. B.,
DEAN OF THE SCHOOL OF DOMESTIC SCIENCE AND ART,
Professor of Domestic Science.

JOHN ANDREW BEXELL, A. M.,
DEAN OF THE SCHOOL OF COMMERCE.
Professor of Business Administration.

COLLEGE COUNCIL.

(The members of the Administrative Council are also members of the College Council.)

FREDERICK BERCHTOLD, A. M.,
Professor of English Language and Literature.

JOHN B. HORNER, A. M., Litt. D.,
Professor of History and Political Science.

GORDON VERNON SKELTON, C. E.,
Professor of Civil Engineering.

EDWARD RALPH LAKE, M. S.,
Professor of Botany and Forestry.

JOHN FULTON, M. S.,
Professor of General and Analytical Chemistry.

THOMAS HENRY CRAWFORD, A. M.,
Professor of Commercial Law.

CLAUDE ISAAC LEWIS, M. S. A.,
Professor of Horticulture.

FRED LEROY KENT, B. Agr.,
Professor of Dairy Husbandry.

CHARLES LESLIE JOHNSON, B. S.,
Professor of Mathematics.

EMILE FRANCIS PERNOT, M. S.,
Professor of Bacteriology.

CLARENCE MELVILLE McKELLIPS, Ph. C.,
Professor of Pharmacy.

GERARD TAILLANDIER,
Professor of Modern Languages.

U. G. McALEXANDER, Capt. 13th Inf., U. S. A.,
COMMANDANT,
Professor of Military Science and Tactics.

JAMES DRYDEN,
Professor of Poultry Husbandry.

HENRY DESBOROUGH SCUDDER, B. S.,
Professor of Agronomy.

HENRY MARTIN PARKS, B. S., E. M.,
Professor of Mining Engineering.

THOMAS MOONEY GARDNER, M. M. E.,
Professor of Electrical Engineering.

CHARLES EDWARD BRADLEY, M. S.,
Professor of Agricultural Chemistry.

EMMETT DUNN ANGELL,
DIRECTOR OF THE GYMNASIUM.
Professor of Physical Education.

WILLIAM FREDERICK GASKINS, B. S.,
Professor of Music.

WILLIAM ARTHUR JENSEN,
Recorder of the Faculties.

WILLIAM ROBINSON BOONE,
Professor of Piano.

IDA BURNETT CALLAHAN, B. S.,
Assistant Professor of English Language and Literature.

FARLEY DOTY McLOUTH, B. S.,
Assistant Professor of Art.

MARK CLYDE PHILLIPS, B. M. E.,
Assistant Professor of Mechanical Engineering.

IDA ANGELINE KIDDER, A. B., B. L. S.,
Librarian.

NICHOLAS TARTAR, B. S.,
Assistant Professor of Mathematics.

CHARLES ARTHUR COLE, M. S.,
Assistant Professor of Pomology.

WILLIBALD WENIGER, Ph. D.,
Assistant Professor of Physics.

ARTHUR LEE PECK, B. S.,
Assistant Professor of Landscape Gardening.

FACULTY.

The members of the Administrative and College councils are also members of the Faculty.

JOHN COLBURN BRIDWELL, B. S.,
Instructor in Zoology and Entomology.

HARRY L. BEARD, B. S.,
DIRECTOR OF CADET BAND.
Instructor in Mathematics.

LOREN BURTON BALDWIN, A. M.,
Instructor in English.

EARL VINCENT HAWLEY, B. S.,
Instructor in Electrical Engineering.

WILLIAM McCAULLY PORTER,
Instructor in Forging.

ELMER POLIC JACKSON, B. S.,
Foreman in Carpentry.

MARION SYDDUM VAN LIEW,
Instructor in Domestic Science.

ARIEL MIRIAM EWING,
Instructor in Domestic Art.

HELEN HYDE TOBIN,
Instructor in Domestic Art.

ERWINE L. POTTER, B. S.,
Instructor in Animal Husbandry.

CARL LAFAYETTE KNOPF, M. E.,
Instructor in Mechanical Engineering.

RALPH DORN HETZEL, A. B., LL. B.,
Instructor in Public Speaking and Debating.

WINIFRED MAUDE WILLIAMS, B. Ph.,
Instructor in English and in Physical Culture for Women.

EDWARD BENJAMIN BEATY, B. S.,
Instructor in Mathematics.

GEORGE ROBERT HYSLOP, B. Sc.,
Instructor in Agronomy.

EARLE PAUL HARDING, B. S.,
Instructor in Pharmacy and Chemistry.

GENEVIEVE BAUM-GASKINS,
Instructor in Voice.

EDMA GREEN,
Instructor in Art.

NETTIE M. FLINN,
Instructor in Piano and Violin.

MYRTIE CLARK VAN DEUSEN,
Instructor in Domestic Science.

ARTHUR GEORGE BOUQUET, B. S.,
Instructor in Horticulture.

OTTO GERALD SIMPSON, B. S.,
Instructor in Dairy Husbandry.

FRED LLEWELLYN GRIFFIN, B. S.,
Instructor in Zoology and Entomology.

SAMUEL HERMAN GRAF, E. E.,
Instructor in Mechanical Drawing.

WILFORD WOODRUF GARDNER, C. E.,
Instructor in Civil Engineering.

RENTON KIRKWOOD BRODIE, B. S.,
Instructor in Chemistry.

HERBERT EDWARD COOKE, B. S.,*
Instructor in Mining Engineering.

ROSE ZANDER ANGELL,
Instructor in Home Nursing.

EDGAR RAYMOND SHEPARD, A. M.,
Instructor in Physics and Electrical Engineering.

GEORGE CLYDE MATHEWS, A. B.,
Instructor in English.

EMMETT B. MOORE,
Instructor in Commerce.

ROBERT HENRY RODGERS, B. S.,
Instructor in Pattern Making.

GERTRUDE EWING McELFRESH, A. B.,
Instructor in English.

MYRTLE ELIZABETH KNEPPER, B. S.,
Assistant Librarian.

ANNA G. SABY, M. A.,
Instructor in Spanish and Latin.

....
Instructor in Civil Engineering.

....
Instructor in Horticulture.

....
Instructor in Chemistry.

....
Instructor in Forestry.

....
Instructor in Agronomy.

....
Instructor in Physical Education.

---

* On leave of absence.

ASSISTANTS.

LAURA HILL, B. S.,
Assistant in Zoology and Entomology.

HELEN MARGARET GILKEY, B. S.,
Assistant in Botany.

GLEN DeHAVEN, B. S.,
Assistant in Bacteriology.

FRANCES HUSTON,
Assistant in Physical Culture for Women.

EDWARD CLEVELAND CALLOWAY, B. S.,
Assistant in Pharmacy.

ALFRED QUINN LUNN,
Assistant in Poultry Husbandry.

JAMES KOEBER, B. S.,
Assistant in Agronomy.

. . . .
Assistant in Mechanical Drawing.

. . . .
Assistant in Military Science and Tactics.

. . . .
Assistant in Chemistry.

. . . .
Assistant in Chemistry.

. . . .
Assistant in Domestic Science.

. . . .
Assistant in Domestic Art.

. . . .
Assistant in English.

OTHER OFFICERS.

JOHN ANDREW BEXELL, A. M.,
Financial Secretary.

JOHN B. HORNER, A. M., Litt. D.,
Registrar.

WILLIAM ARTHUR JENSEN,
Secretary to the President.

WILLIAM HORACE KERR,
Clerk Business Office,
Manager Bookstore.

GEORGE BRELSFORD KEADY,
Foreman Printing Plant.

HELEN LUCILE HOLGATE, B. S.,
Station Clerk.

JUANITA ROSENDORF, B. S.,
Assistant Registrar.

AVERY LAMAR APPLEWHITE, B. S.,
Farm Foreman.

ARTHUR L. PECK, B. S.,
Campus Foreman.

LETTITIA PEARL LEONARD, B. S.,
Bookstore Clerk.

OTTO FRANK LUDWIG HERSE,
Assistant Printer.

JOHN ANDERSON SPANGLER,
Foreman Power and Heating Plant.

ELLSWORTH ERWIN,
Head Janitor.

STANDING COMMITTEES.

The President of the College is ex-officio a member of all standing committees.

1. *Entrance Examinations.*—Professors Tartar, McLouth, Mr. Baldwin.
2. *Scholarship and Graduation.*—Professors Berchtold, Skelton, Kent, Weniger.
3. *Schedules.*—Professors Fulton, Johnson, Skelton.
4. *Attendance.*—Professors McAlexander, Fulton, Phillips.
5. *Dormitories.*—Professors Bexell, Greer, Mr. Hetzel, Mr. Cooke, Mr. Brodie.
6. *Student Societies.*—Mr. Hetzel, Mr. Baldwin, Miss Williams.
7. *Social Entertainments.*—Professors Bradley, Gaskins, McLouth, Callahan.
8. *Athletics.*—Professors Angell, Johnson, Cordley, McAlexander, McKellips.
9. *College Extension.*—Professors Withycombe, Bexell, Dryden, Greer, Lake.
10. *College Exhibits.*—Professors Lake, Cordley, Greer, Covell.

STAFF OF THE AGRICULTURAL EXPERIMENT STATION.

WILLIAM JASPER KERR,
PRESIDENT.

JAMES WITHYCOMBE,
DIRECTOR,
Animal Husbandman.

ARTHUR BURTON CORDLEY,
Entomologist.

EDWARD RALPH LAKE,
Botanist.

CLAUDE ISAAC LEWIS,
Horticulturist.

FRED LEROY KENT,
Dairyman.

EMILE FRANCIS PERNOT,
Bacteriologist.

JAMES DRYDEN,
Poultry Husbandman.

HENRY DESBOROUGH SCUDDER,
Agronomist.

CHARLES EDWARD BRADLEY,
Chemist.

JOHN COLBURN BRIDWELL,
Assistant Entomologist.

CHARLES ARTHUR COLE,
Assistant Horticulturist.

ERWINE L. POTTER,
Assistant Animal Husbandman.

ARTHUR L. PECK,
Floriculturist and Landscape Gardener.

GEORGE ROBERT HYSLOP,
Assistant Agronomist.

HERMAN VANCE TARTAR,
Assistant Chemist.

H. S. JACKSON,
Assistant Entomologist.

ARTHUR GEORGE BOUQUET,
Olericulturist.

CLARENCE CORNELIUS VINCENT,*
Assistant Horticulturist.

OTTO GERALD SIMPSON,
Assistant Dairyman.

FRED LLEWELLYN GRIFFIN,
Assistant Entomologist.

LAURA HILL,
Assistant Entomologist.

GLEN DeHAVEN,
Assistant Bacteriologist.

LYMAN BUNDY,
Assistant Chemist.

BERT PILKINGTON,
Assistant Chemist.

ALFRED QUINN LUNN,
Assistant Poultryman.

JAMES KOEBER,
Assistant Agronomist.

....
Assistant Horticulturist.

....
Assistant Chemist.

---

* On leave of absence.

UNION BRANCH EXPERIMENT STATION.

THOMAS ROBERT WITHYCOMBE, B. S.,
SUPERINTENDENT.

CECIL CARL CLARK, B. S.,
Assistant Horticulturist.

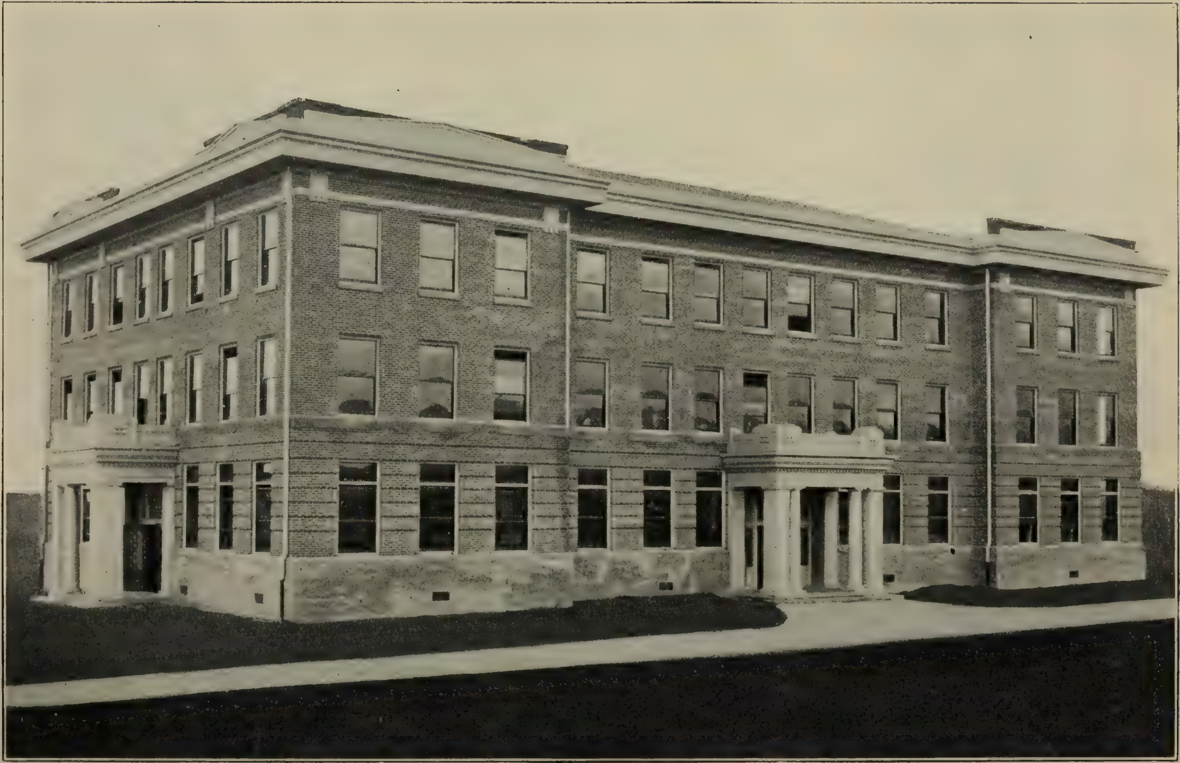
UMATILLA BRANCH EXPERIMENT STATION.

RALPH WILMER ALLEN, B. S.,
SUPERINTENDENT.

DRY-FARM BRANCH EXPERIMENT STATION.

H. J. C. UMBERGER,
SUPERINTENDENT.

Agricultural Hall



Agronomy Building

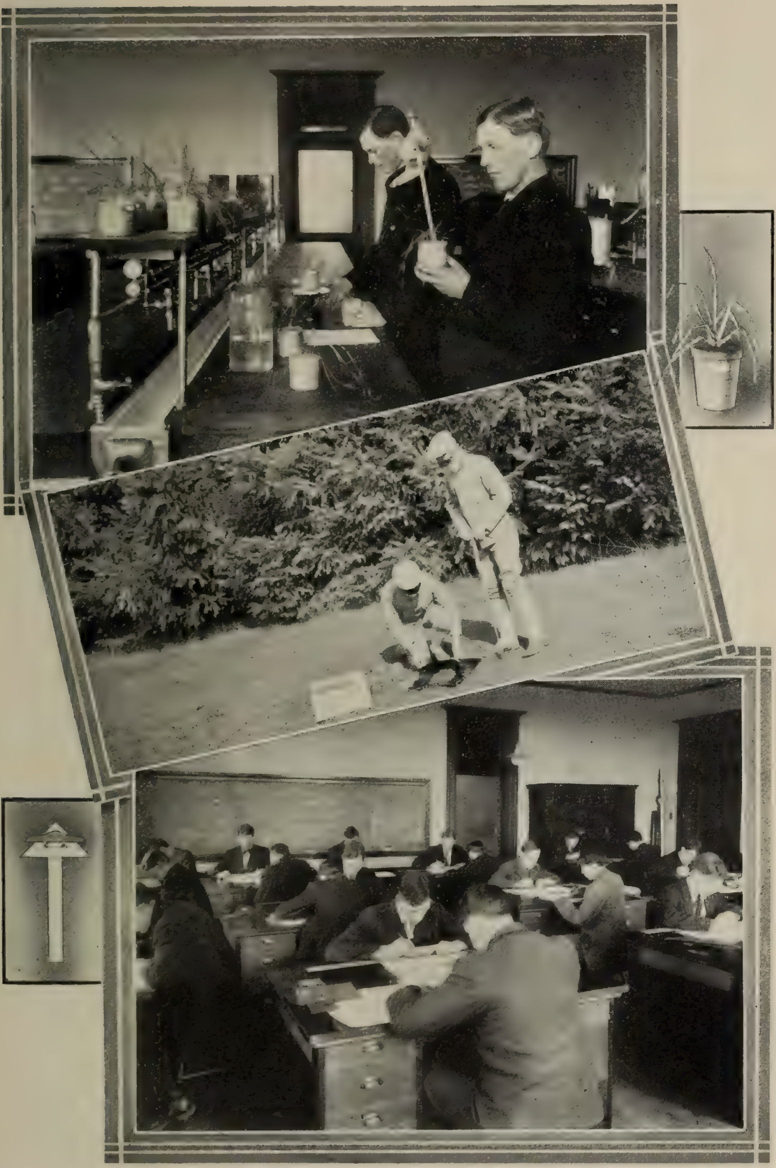
College Barns

PROPOSED AGRICULTURAL HALL

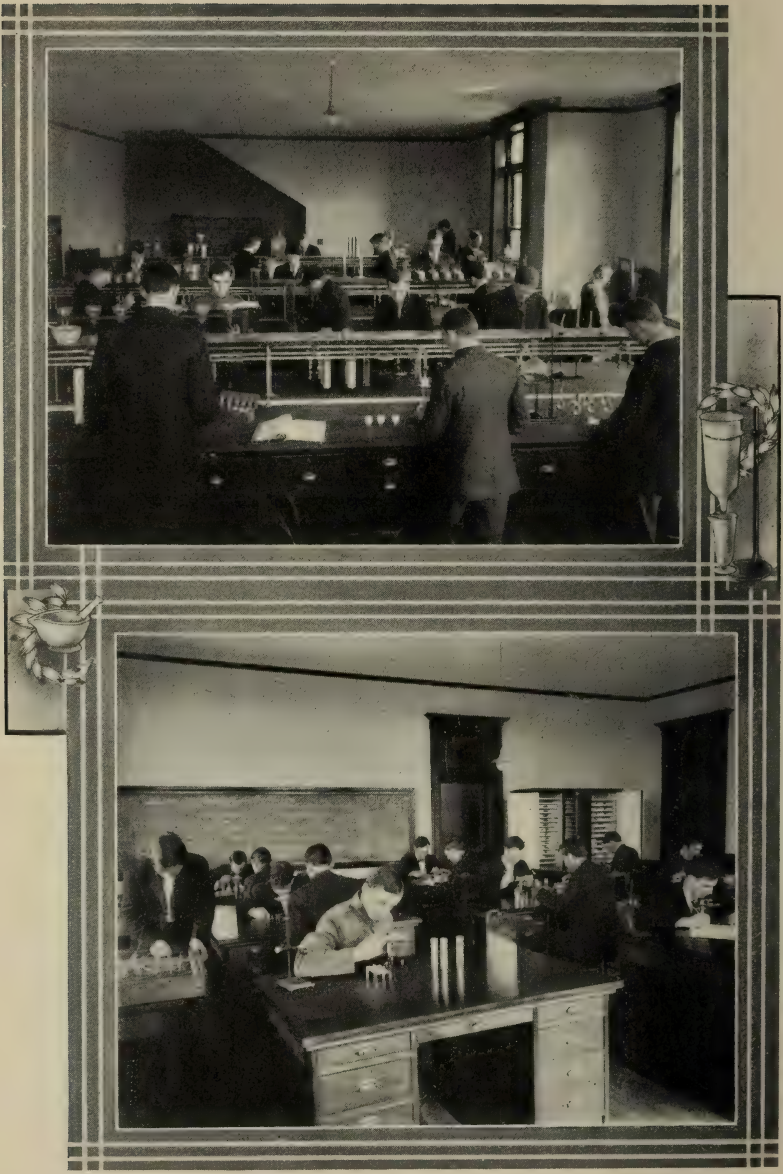
Central Agricultural Building (To be completed during 1909-1910)

Horticultural Building

Agronomy Building (Already completed)



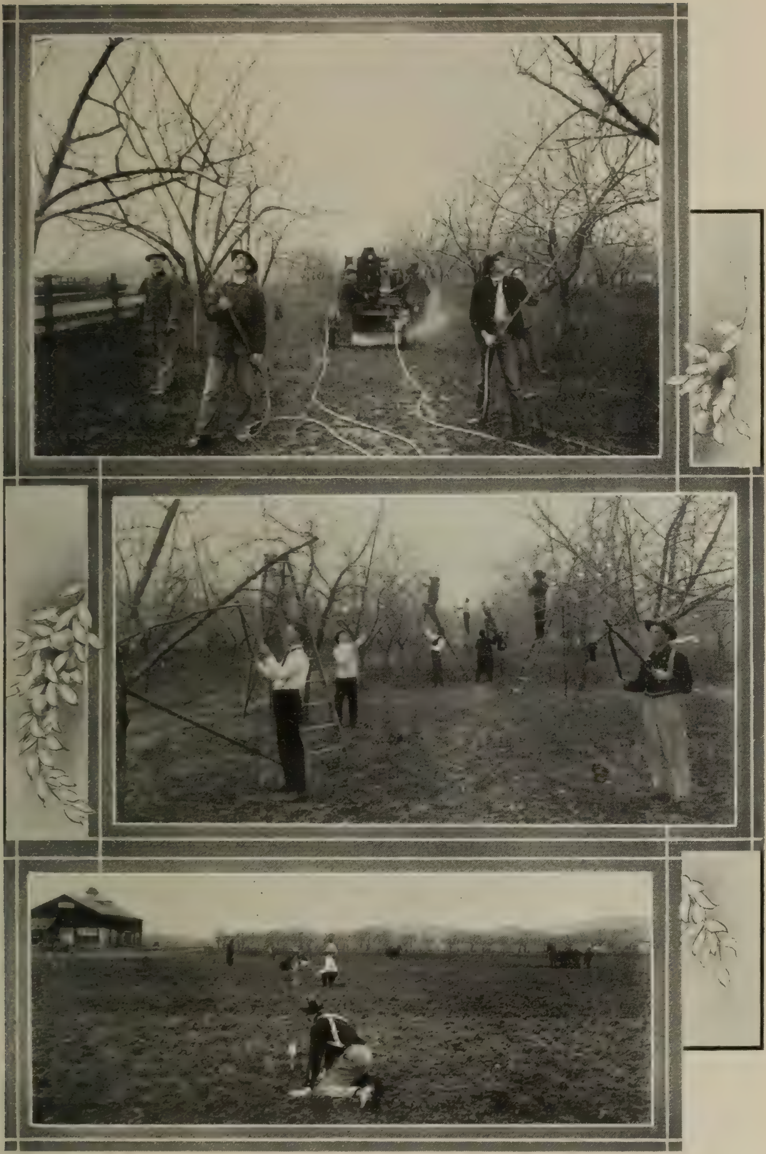
Agronomy—The Wire Basket Test, Sampling Soil, Drawing Barn Plans



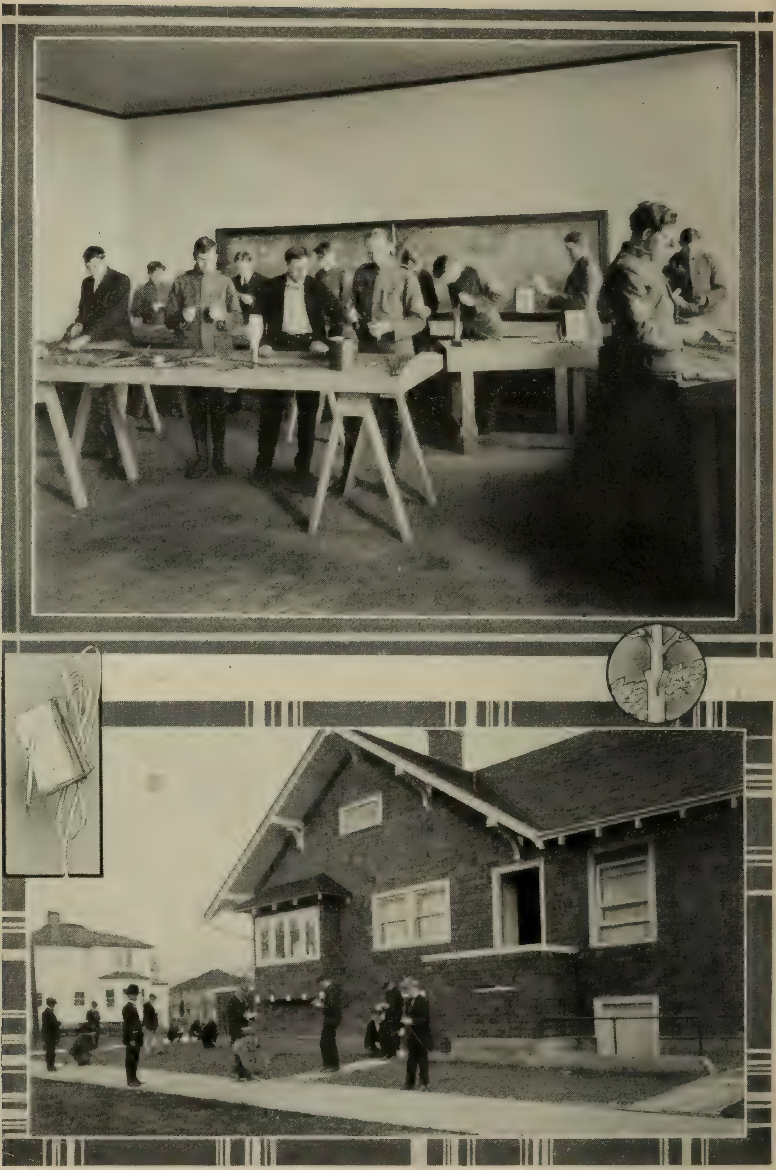
Agronomy—Testing Soil, Examining Commercial Seed

Farm Mechanics Laboratory—Class in Stock Judging

Dairy Scenes—Classes in Stock Judging



Classes in Spraying, Pruning, and Laying Out Orchard



Classes in Walnut Grafting and Landscape Gardening

Horticultural Classes in Pruning, Grafting, Packing, Apple Harvesting

Poultry Plant—Colony Houses, Incubator House

Student Agricultural Societies—Agricultural Club, Lewelling Club

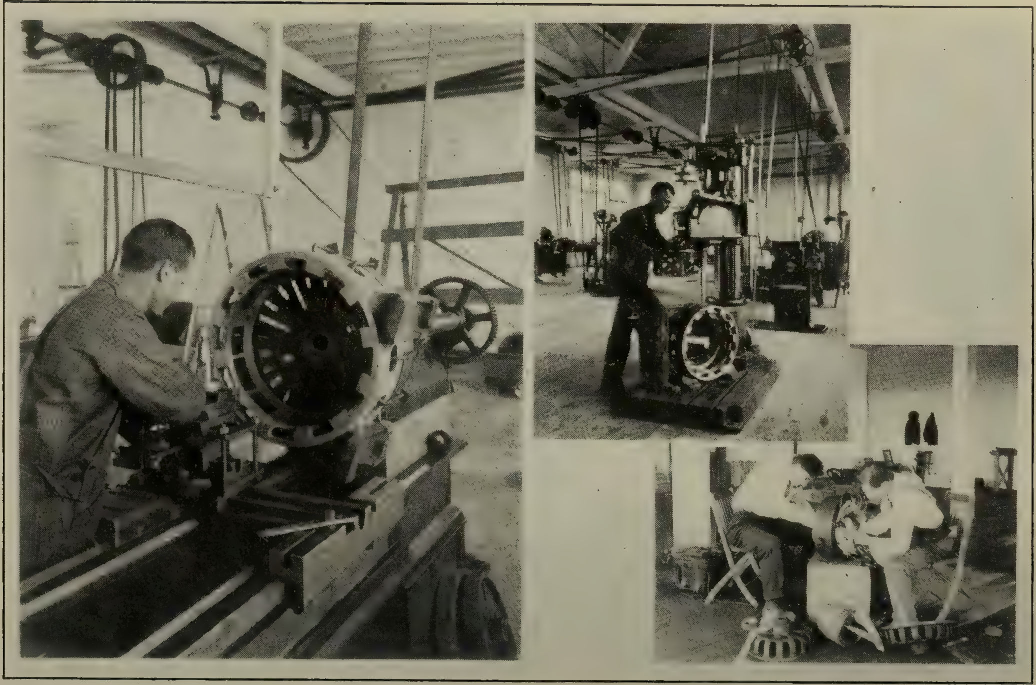
Mechanical Hall

Shops and Mechanical Hall

Civil Engineering—Students in Surveying

Classes in Assaying and Mechanical Drawing

Experiments With Testing Machine—Lathe Work in Machine Shop

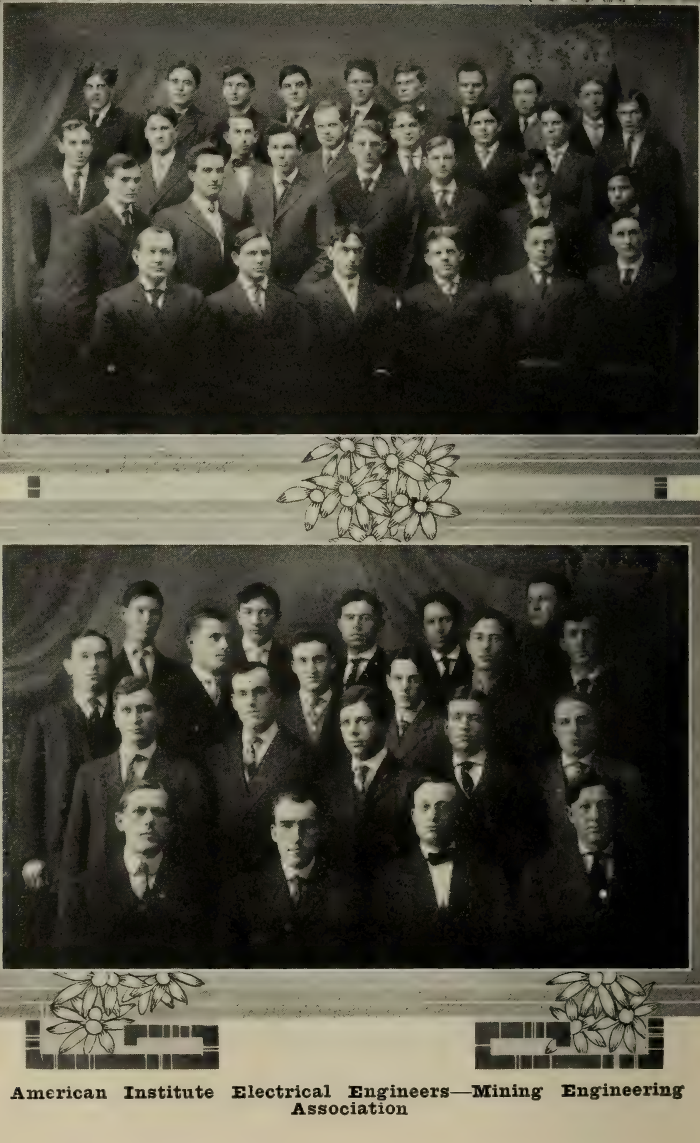


Views in Engineering Laboratory

View in Forge Shop

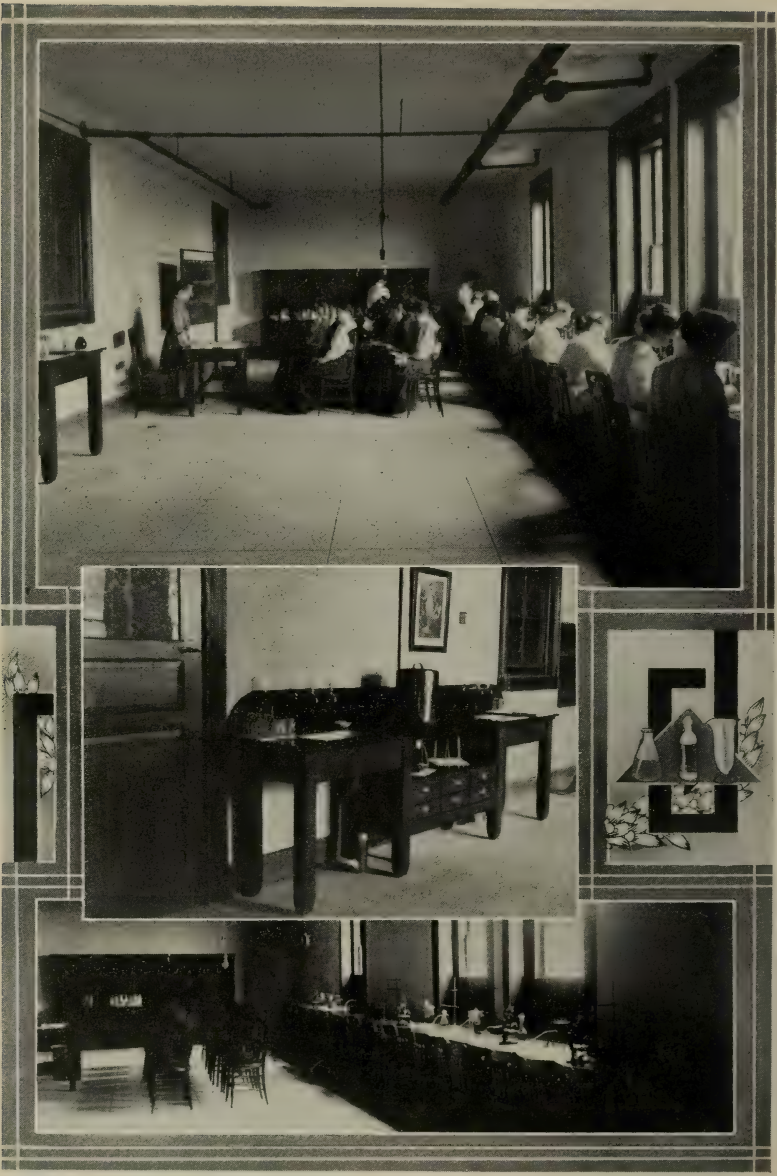
Views in Carpentry Shop

Engineering Association—Civil Engineering Society

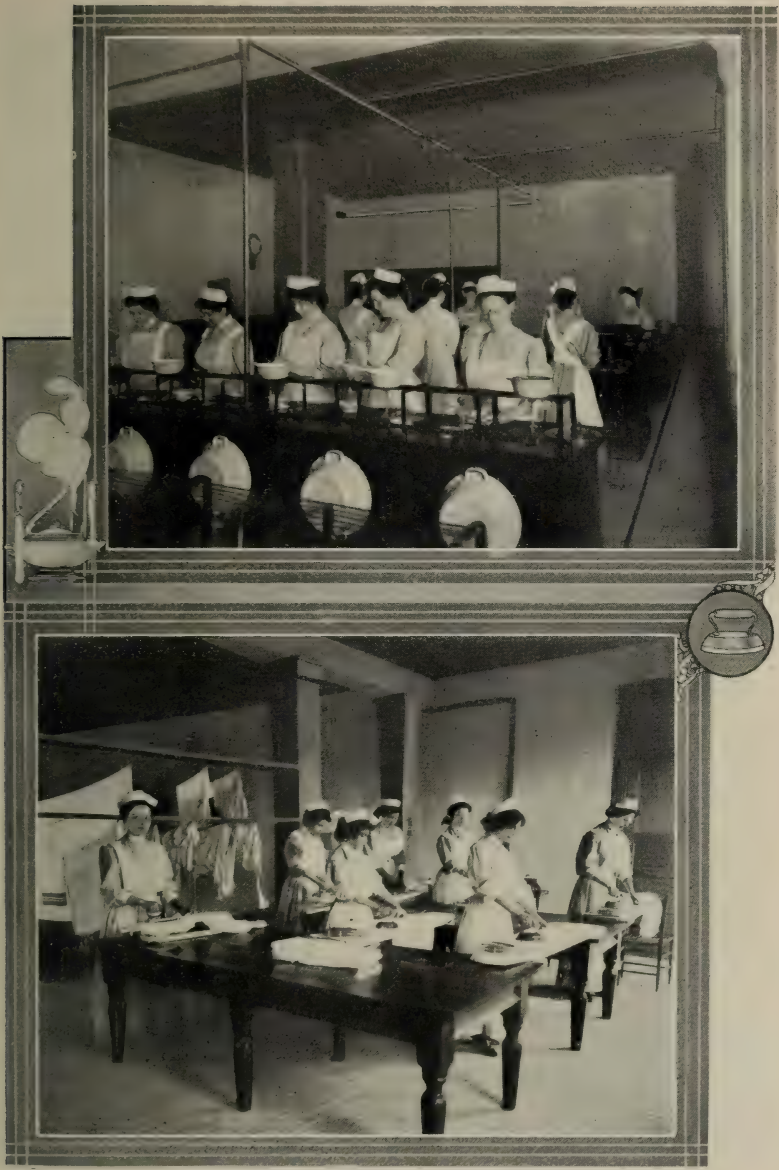


American Institute Electrical Engineers—Mining Engineering Association

Waldo **Hall**—**Domestic** Science, Women's Dormitory

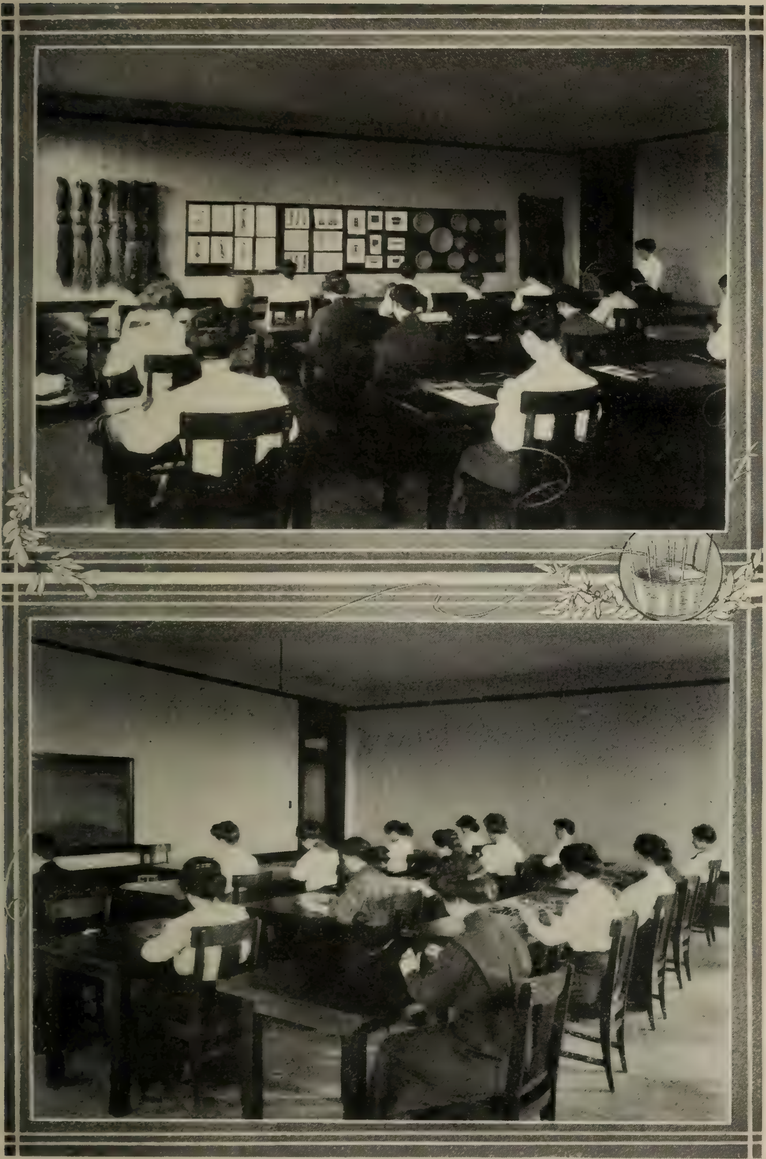


Class in Household Bacteriology—Corners in Bacteriological Laboratory



Classes in Cooking and Laundering

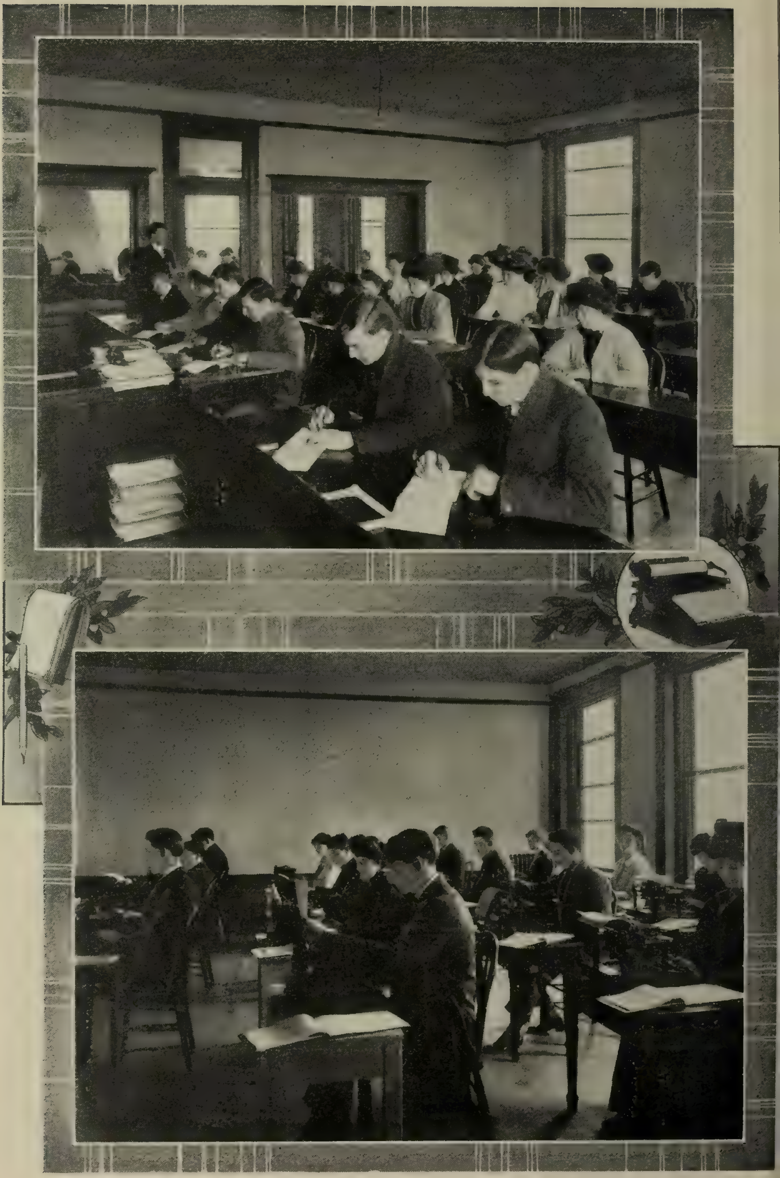
Class in Hand and Machine Sewing



Classes in Basketry and Weaving, and in Millinery

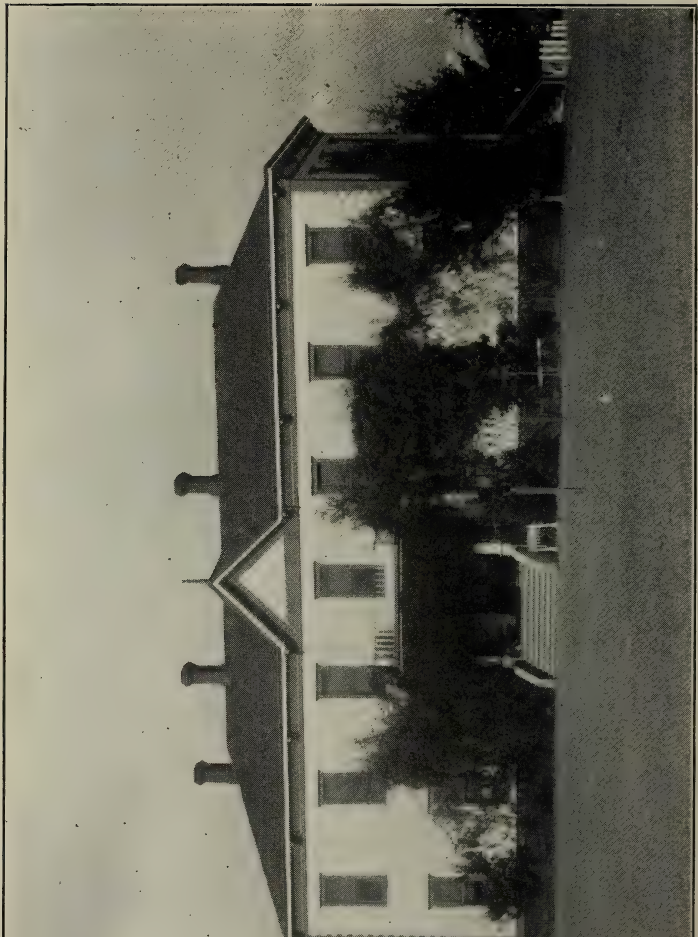
Students' Rooms—Waldo Hall

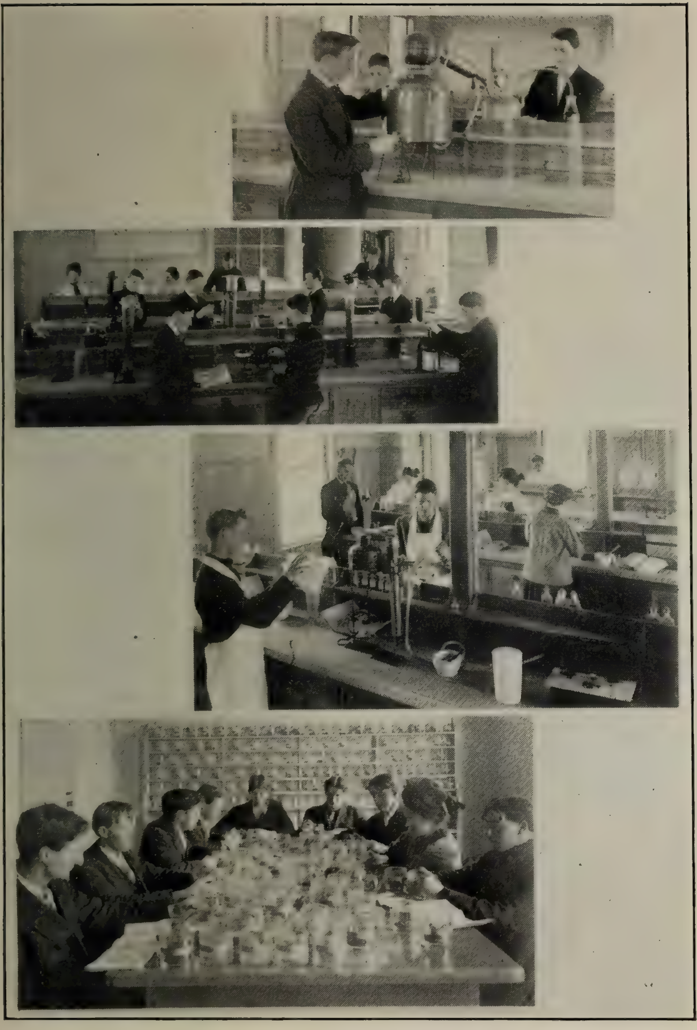
Class in Accounting and Business Administration



Classes in Stenography and Typewriting

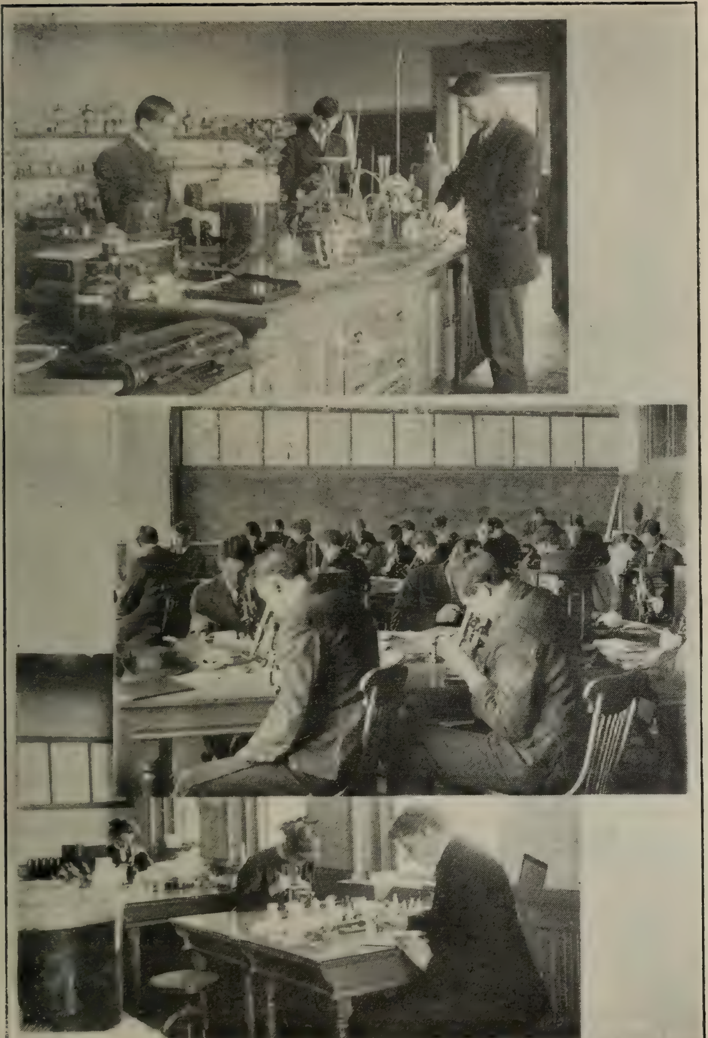
Commercial Club



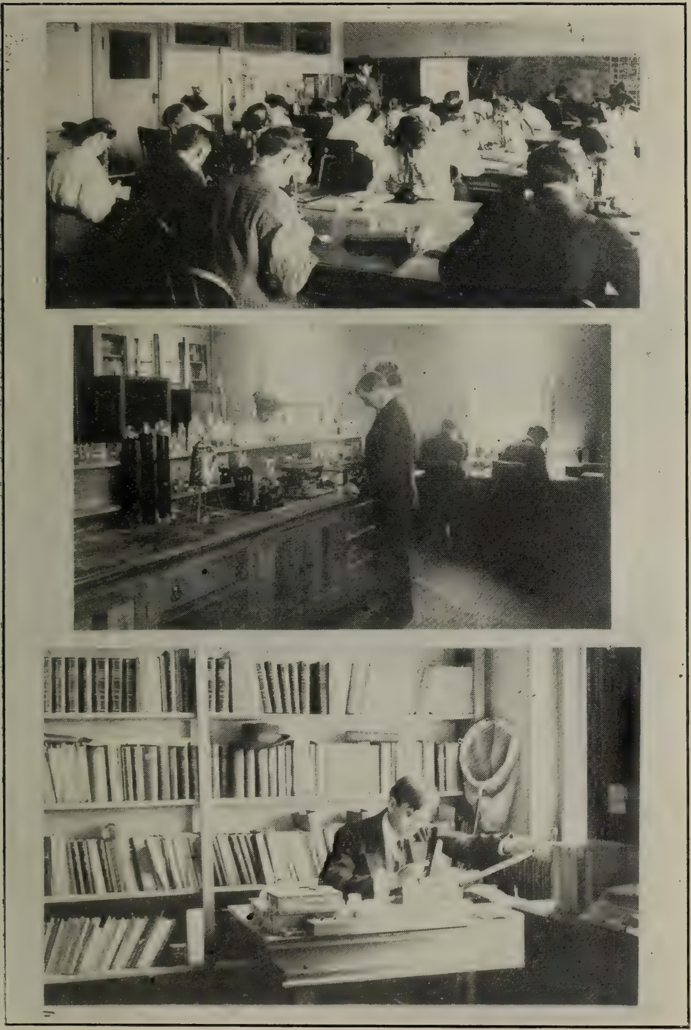


Views of Pharmaceutical Laboratories

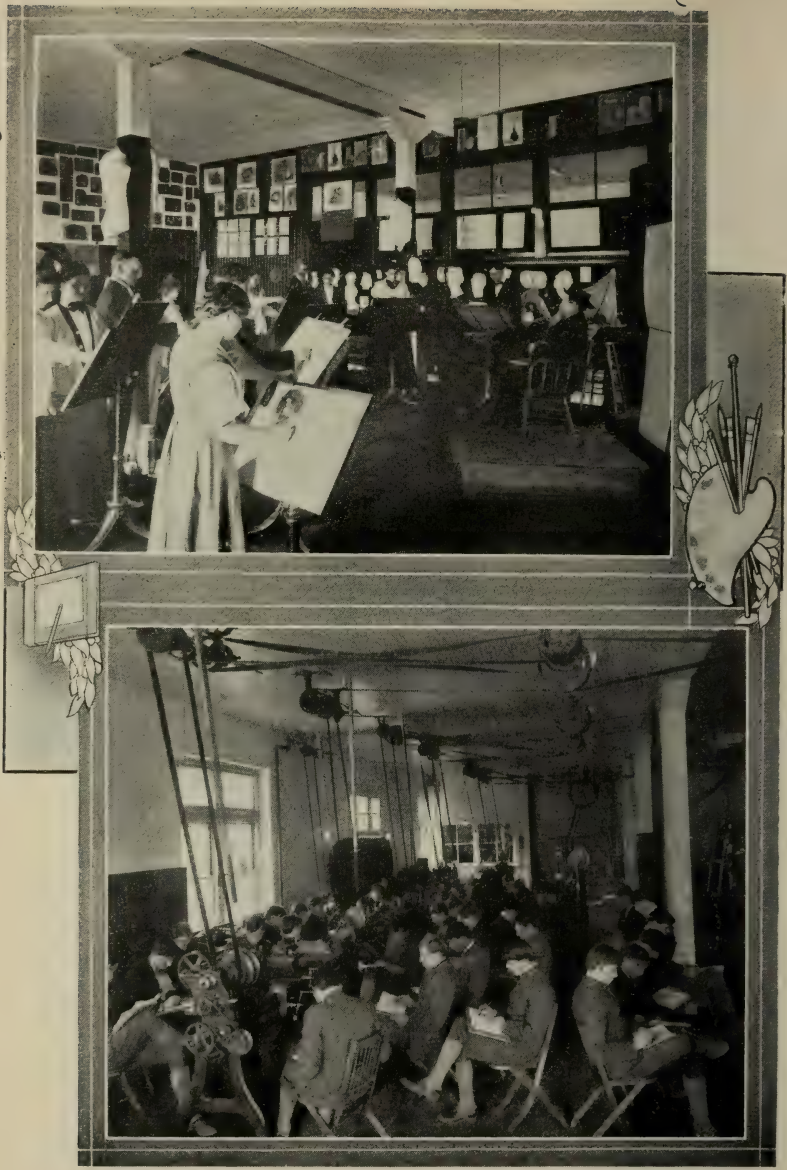
Pharmaceutical Society



Views of Zoological Laboratories



Classes in Botany

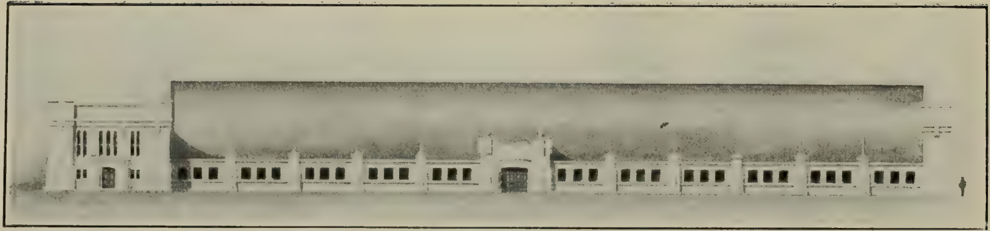


Drawing—Life Class, Engineering Students in Freehand Drawing

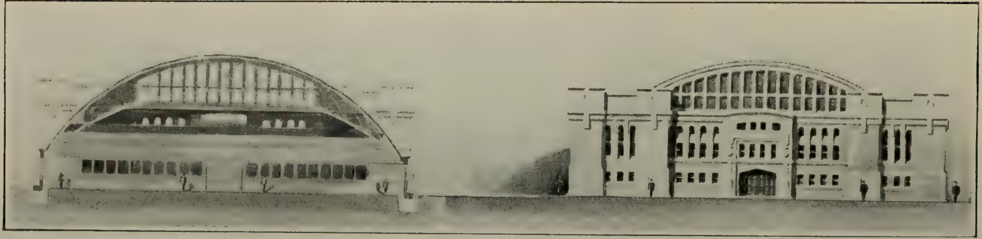
Administration Building

Cauthorn Hall—Men's Dormitory

Rooms in Men's Dormitory—Cauthorn Hall Club



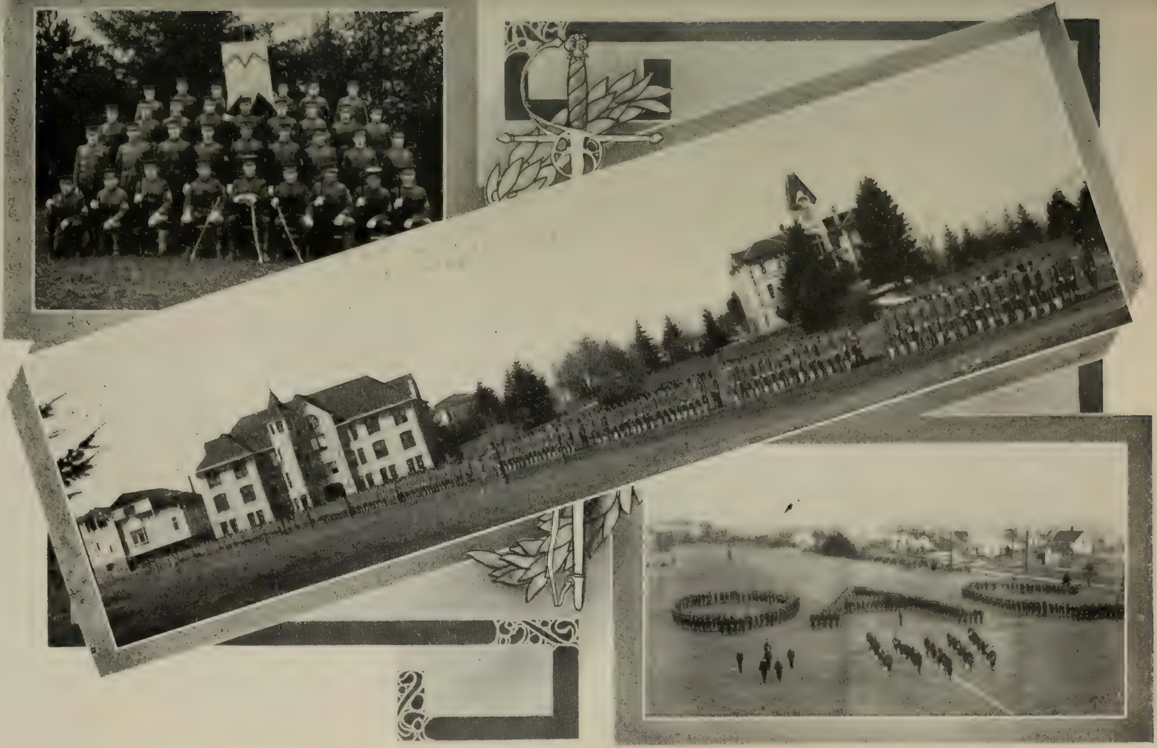
Side View



Sectional View Showing Style of Roof

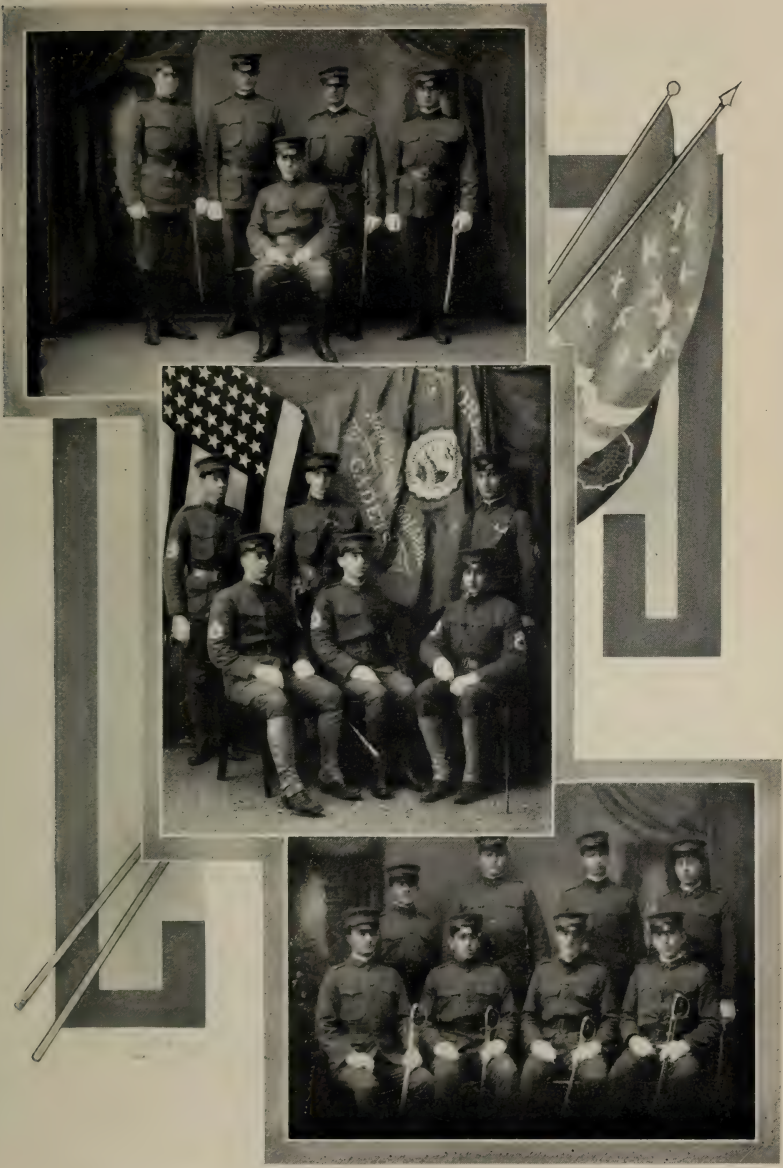
Front End View

Armory and Drill Hall (to be constructed during 1909-1910)



Military Science and Tactics—Banner Company, Regiment, The "Human" O. A. C.

O. A. C.
BAND



Cadet Officers—Staff Officers, Color Bearers, Field Officers

Gymnasium

Physical Education—Crowd Ball, Gymnasium Class in Open, Over the Hurdles.

Basketball Team—Undefeated Northwest Collegiate Champions; Football Team, 1908

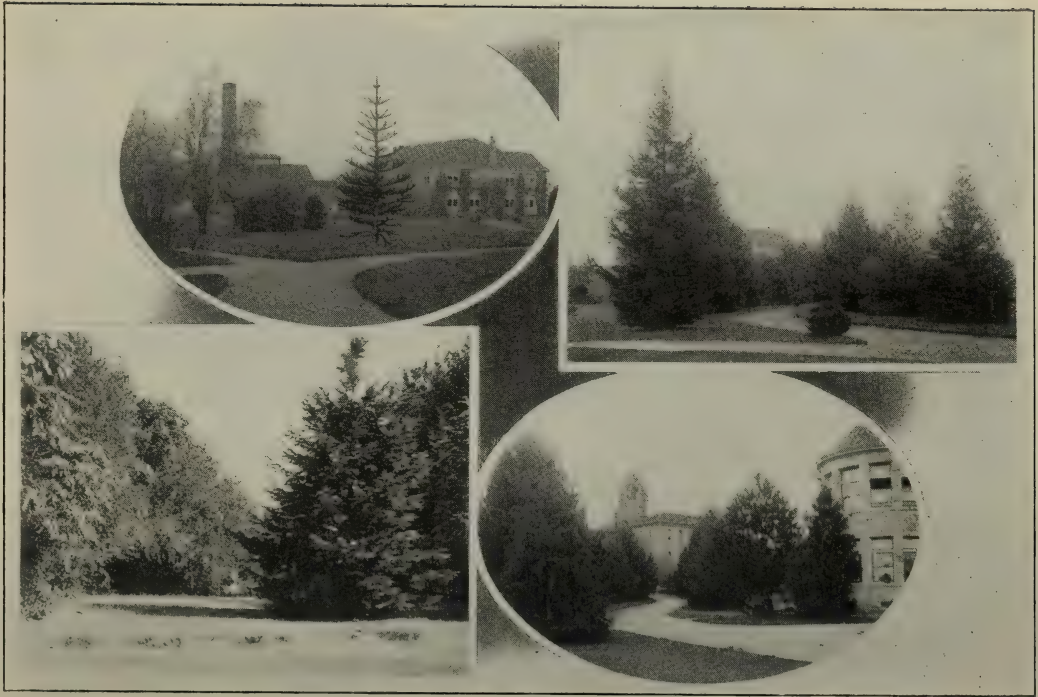
Musical Societies—Ladies' Madrigal Club; Glee Club

Musical Societies—Mandolin Club, College Orchestra

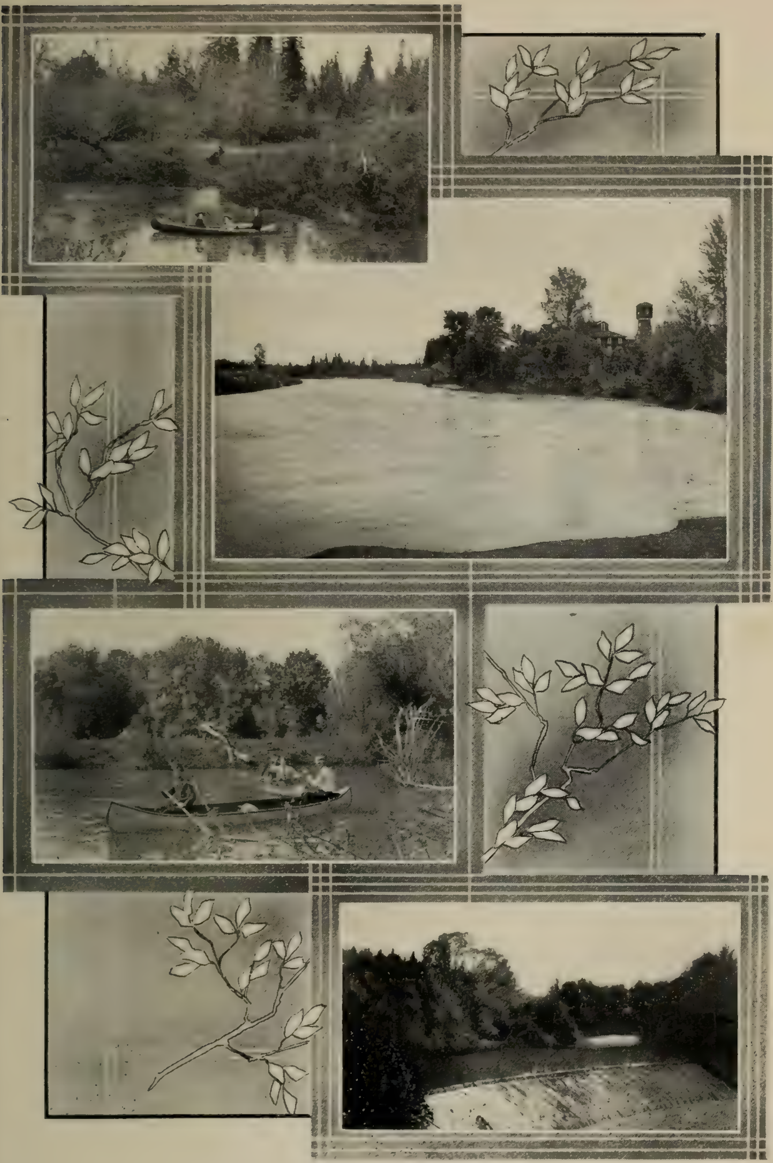
Shepard Hall—Exterior and Interior Views

Christian Associations—Y. W. C. A. Cabinet; Y. M. C. A. Cabinet

Student Publications—Editorial Staffs "Barometer," "Northwest Journal of Engineering," "The Oregon Countryman"



Views on College Campus



River Scenes Near College Campus

Oregon Agricultural College

GENERAL INFORMATION.

In pursuance of an Act of Congress approved by President Lincoln, July 2, 1862, a grant of land was made to each state in the Union to the amount of thirty thousand acres, or its equivalent, for each Senator and Representative in Congress to which the State was entitled by the apportionment of the census of 1860. The proceeds under this Act were to constitute a perpetual fund, the principal of which was to remain forever undiminished; but the interest arising from said fund was to be inviolably applied by each state which should avail itself of the benefits of the act, to the support and maintenance of a "College where the leading objects shall be, without excluding other scientific and classical studies, and including military tactics, to teach such branches of learning as are related to agriculture and the mechanic arts, in such manner as the legislatures of the states may respectively prescribe, in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions in life." Ninety thousand acres of land were apportioned to Oregon, and by an Act approved October 9, 1862, the Legislative Assembly of Oregon accepted the provisions of the congressional law.

The Land Grant Fund. The subsequent sale of this land has netted the College approximately $200,000. This at present is invested in securities bearing six per cent interest. The Act of Congress of 1862 explicitly states that no part of the funds so appropriated or the interest arising therefrom shall be used for the purchase, erection, or maintenance of any building or buildings.

The Hatch Fund. Under an Act of Congress, approved March 2. 1887, the College receives $15,000 a year for the maintenance of an Agricultural Experiment Station, "to aid in acquiring and diffusing among the people useful and practical information on subjects connected with agriculture."

The Morrill Fund. On August 30, 1890, an Act was passed by Congress "to apply a portion of the proceeds of the public lands to the more complete endowment and support of the colleges for the benefit of agriculture and the mechanic arts established under the provisions of the Act of 1862." This Act provided that in 1890 $15,000 should be paid to each of the land grant colleges, and that the amount so appropriated should be increased by the sum of $1,000 annually for ten years, and that thereafter the amount annually appropriated should continue to be $25,000. Under an Act of Congress approved March 4, 1907, known as the Nelson Amendment, this fund is increased by the sum of $5,000 for the first fiscal year ending June 30, 1908, and by an additional $5,000 for each succeeding year until the total annual amount is $50,000.

The Adams Fund. An Act of Congress, approved March 20, 1906, appropriated an initial $5,000 for that year, and $2,000 additional for each year thereafter until the annual amount shall reach $15,000. This fund is "to be applied only to paying the necessary expenses of conducting original researches or experiments bearing directly on the agricultural industry" of the State and therefore supplements the Hatch Fund in the maintenance of the Experiment Station.

In addition to the income from the national government, the College is dependent upon the State Legislature for such appropriations as are required for the maintenance and development of the institution, in accordance with the provisions of the Acts of Congress, and in response to the industrial and educational demands of the State.

HISTORY.

As there were no state colleges in Oregon in 1868, the Legislature of that year, which provided for the location of the land received under the act of 1862, gave the interest on the funds derived from the sale of the land to the Corvallis College, a private institution in Benton County, which was then under the control of the Methodist Episcopal Church, South. None of the land granted was sold, for a number of years, and the Legislature made small annual appropriations for the support of the school.

In 1885 the church voluntarily relinquished its claim on the funds of the College, and the State assumed control of the institution. The Legislature of that year provided for the "permanent location of the State Agricultural College at Corvallis in Benton County," on condition that the citizens of said county should, within four years, erect on the "farm containing thirty-five acres in the immediate vicinity of said city, known as the Agricultural College farm, brick buildings for the accommodation of said State Agricultural College at a cost of not less than $20,000." During the summer of 1887 the corner stone of the building erected by the citizens of Benton County was laid by the Governor of Oregon, amid imposing ceremonies.

This structure, now known as the Administration Building, was the nucleus around which other buildings soon began to cluster as necessity and growing interest demanded. For a year or two there was ample room; but, as the institution grew, more land was needed and provided, and instead of thirty-five acres originally comprising campus and grounds, the institution now owns two hundred and twenty-four acres; and instead of one structure, there are now eighteen. There has also been an increase in the attendance from ninety-seven to upwards of thirteen hundred students. Twenty years ago, most of the students came from Benton and neighboring counties. Now, every county in Oregon, twenty other states, and two foreign countries are represented. The increase in the number of students called for an increase in the number of the faculty. This body, from the number of five in 1884, has grown until it now closely approaches the fourscore mark. Other features usually found in connection with progressive educational institutions have grown in equal ratio. The courses have been strengthened, the standard has been advanced, and other improvements made from time to time, which have added to the thoroughness and efficiency of the work.

GOVERNMENT.

The general government of the College is vested primarily in the Board of Regents, and, under their control, in four other administrative bodies,—the Administrative Council, the College Council, the Faculty, and the Experiment Station Staff. These bodies, in the exercise of their respective duties, determine the questions of policy and regulate all matters relating to the interests of the institution.

The Board of Regents consists of thirteen members, of whom the Governor, the Secretary of State, the Superintendent of Public Instruction, and the Master of the State Grange are ex-officio members. The other nine members are appointed by the Governor with the approval of the State Senate, and hold office for a term of nine years. Under a law of the State Legislature, passed in 1885, the Board of Regents constitutes a body corporate, under the name of "The Board of Regents of the State Agricultural College, * * * with power to sue and be sued, and to make contracts," and to enact such regulations as may be necessary for the maintenance and development of the College.

The Administrative Council consists of the President of the College, the Director of the Experiment Station, and the Deans of the different Schools. The function of this council is to consider and determine the larger questions of policy and administration.

The College Council is composed of the President of the College, the professors, and assistant professors. This body considers all general questions relating to the educational work and policy of the College; arranges and correlates the courses of study, and determines the requirements for admission and graduation. The different committees of the College Council, representing the several schools of instruction, have charge of the enrolment and progress of students in the respective schools, and investigate the records of all candidates for graduation.

The College Faculty includes the President, the professors, the assistant professors, the librarian, the instructors, and the assistants. It considers routine questions of method and discipline for which it is particularly well adapted, being in close contact with all that pertains to student interests and student life.

The Experiment Station Staff includes the President of the College, the Director of the Experiment Station, and the heads of the various departments of the School of Agriculture that are engaged in research and experimental work. The members of this staff are engaged in the investigation of problems encountered in the development of the agricultural interests of the State. They also distribute information regarding their investigations by means of correspondence, circulars and station bulletins.

The Students. The College does not undertake to prescribe in detail either its requirements or prohibitions. Students are met on a plane of mutual regard and helpfulness. Since the advantages of the institution are provided at public expense, the students are under special obligation to perform faithfully all their duties, not only to the College, but also to the State and to the community. Whenever the deportment of any student is such that his influence is inimical to the interests of the institution, he will be relieved from further attendance.

PURPOSE AND SCOPE.

The purpose of the College is to provide, in accordance with the Acts of Congress under which it is maintained, a liberal, thorough, and practical education,—an education that will afford the training required for efficient service in different branches of industry. The distinctive technical work covers the three great fields of production, manufacture, and commerce. Special attention is given to the application of science. All the practical work in the laboratories, in the shops, in the orchards, and on the farm, is based upon scientific principles. While the industrial or technical work is emphasized, the importance of a thorough general training, of mind development, and culture, is recognized in all of the work throughout the institution. The object is to meet the demand for a broad and general education, supplemented by special technical training.

The work, therefore, covers a broad field, including technical courses along the different lines of agriculture and forestry, commerce, pharmacy, engineering and household technology; with the necessary training in the basic subjects of mathematics and the natural and physical sciences; and also the general training in language, literature, history, and civics, which constitutes an essential part of a liberal education.

In all the work of the institution, the object is to train the mind, the eye, and the hand to act in unison; to unfold and coordinate the faculties of mind and body; to develop a symmetrical manhood and womanhood, and a just appreciation of clean, upright citizenship.

LOCATION.

The seat of the Oregon Agricultural College is Corvallis, a city of over five thousand inhabitants, situated at the head of navigation on the Willamette River. As the name implies, it is in the heart of the far-famed Willamette Valley. It is readily accessible by railway from all parts of the State; it has free mail delivery; there are many churches, and no saloons, and the moral tone is equal to that of any city within the boundaries of the State. It is a city of homes, and its people are justly proud of the great institution within their midst, and jealously guard its good name.

Situated on high, well-drained land, open to the invigorating sea-breeze, Corvallis is one of the most healthful cities in the State. It has never been visited by any dangerous epidemic disease, and the possibilities of such visitation in the future appear remote, for the city has a complete modern sewerage system and a first-class gravity water system, supplied from springs high up the slope of Mary's Peak, the tallest mountain in the Coast Range, some fifteen miles away to the west. The city and its environs are conducive to wholesome student and home life. It has an ample supply of pure mountain water for all domestic and sanitary purposes. The atmosphere is purified, and the climate ameliorated by almost constant ocean breezes,—warm in winter and cool in summer. The surrounding landscape elicits praise from all who behold its delightful charms as viewed in the extensive area of fertile fields, gardens and orchards. The wooded glens of the near-by foothills, and the rippling mountain brooks, or the more pretentious streams frequented by canoe, yacht, and launch parties are fruitful sources of recreation; while the magnificent distant views to the east, where the fir-clad Cascade Mountains, with their wealth of trees and their perennially snow-capped sentinels, Hood, Jefferson and the Three Sisters, present a constant panorama of picturesque mountain scenery. With such an environment, the city is truly an ideal location for a college and a home.

GROUNDS AND BUILDINGS.

The College Grounds comprise two hundred and twenty-four acres and occupy a slightly elevated and gently undulating site partly within the western limits of the City of Corvallis. That part of the grounds, over forty acres in extent, lying immediately about the several buildings and usually designated as the lawns and campus, is tastefully planted with both native and exotic ornamental trees, shrubs, and herbs. The one hundred and eighty acres used for the farm, garden and orchard operations is so platted and planted as to meet the demands of the various lines of work and still conform to a general scheme of landscape embellishment. Broad drives and walks traverse the grounds in all directions, thus rendering every objective point easily accessible. The numerous magnificent specimen trees, groups of shrubbery and massed borders are a source of enjoyment as well as instruction to all those who frequent the grounds. The scheme of planting has been such as to give the grounds an air of peaceful activity, orderly effort, earnest purpose, and quiet refinement. Daily association with such scenes, for a period of years during the time when men and women are forming the habits of thought and action that will be theirs through life, is certain to have a deep-seated and subtle influence for good in moulding the character of future citizens.

The following brief descriptions will convey a general idea as to the principal buildings and the purposes for which they are used:

The Administration Building is a three-story brick structure 90x120 feet, containing thirteen recitation rooms, the library, and the offices of the President, the Registrar, and the Secretary. Centrally located and on a slight eminence, it commands an unsurpassed view of the campus, the City of Corvallis, the Willamette River, and the picturesque Cascades.

Agricultural Hall, situated southeast of the Administration Building, and constructed of gray granite and sandstone, covers a ground space of 85x125 feet, has three stories and basement, and contains twenty-nine rooms. It is one of the most substantial buildings on the grounds, and within it, at present, are the offices of the Director of the Experiment Station, and the Dairy, Bacteriological, Botanical, Chemical, and Zoological departments, with their various laboratories, recitation rooms and lecture halls, together with the general museums.

The **Agronomy Building** stands southwest of the Administration Building, and forms the north wing of the proposed new Agricultural Hall. It is an imposing structure of brick and stone, 72x130 feet, with three stories and basement. It faces north, commanding splendid views of the valley and the college grounds. It is thoroughly modern in all its equipment, and while intended solely for the work in agronomy, at present it accommodates, temporarily, three departments, with parts of others. The first floor, occupied by the departments of Agronomy and Horticulture, contains eight rooms, and is specially arranged for such work as agrostology, soil physics, and kindred subjects. The second floor contains nine large rooms, particularly arranged for the work in domestic arts, as dressmaking, sewing, millinery, cutting, fitting, and modeling. The third floor, with eight rooms, is fitted for the work of the course in commerce, consisting of accounting, shorthand, typewriting, banking, merchandising and other phases of commerce. The interior finish throughout is natural grain Douglas fir, burlap wainscoating, and tinted walls. Every room is provided with hot and cold water, electric light, steam heat, and special furniture. The laboratories and class rooms are well equipped with desks, lecture chairs, tables and other apparatus; and all appliances are of the most recent design for the work in hand.

The Horticultural Building is a two-story frame structure, 30x36 feet, with accompanying glass houses having separate floor space of two thousand three hundred square feet. It is north of the Administration Building, and contains the offices and principal laboratories of the department of Horticulture.

Mechanical Hall, about one hundred and fifty yards northeast of the Administration Building, is two stories high, 90x120 feet, and constructed of Oregon gray granite and sandstone. It is a fine, substantial building, well arranged and admirably adapted for the purpose for which it is used. Besides recitation and lecture rooms for the classes in Mechanical, Electrical, and Civil Engineering, it contains the Art Rooms and the Physical Laboratories.

The Mechanic Arts Building is a modern, well-lighted structure of brick with cement foundations, 52x52 feet, two stories high, flanked by a one-story wing on the east, 40x220 feet, and a similar wing on the south, 40x200 feet. The central portion contains the office of the Director, a display room for student work, a tool room for the machine shop, and a finishing room for the wood shop. On the second floor is a general drafting room, 30x50 feet, with a commodious blue-print and dark room adjoining. The south wing contains the main wood-working shop, 40x97 feet, a stock room, 30x40 feet, a carpenter shop, 20x40 feet, and the College printing plant, 40x50 feet. The east wing contains the machine shop, 40x80 feet, the blacksmith shop, 40x100 feet, store room for coal and iron, lockers, and toilet rooms.

The Mining Building is a small frame structure immediately south of the Administration Building and contains the Mining Engineering offices, the Geological and Mineralogical museum and a recitation room which will accommodate about twenty-five students.

The Mining Laboratory is situated immediately south of Shepard Hall. It is a one-story brick structure, 40x70 feet, and well lighted. This building has been remodeled recently, and now contains the Geological and Mineralogical laboratories, an assay laboratory, a furnace room, a weighing room and supply room for the work in Mining Engineering.

The Armory is situated about two hundred yards south of the Administration Building. It is built of stone and wood, 70x120 feet. As its name implies, it is intended, primarily, for the Military Department; but its one large room is also used as a lecture hall, an assembly room, or a place for entertainments when large audiences are expected. It will accommodate fourteen hundred persons. In the basement are the dressing rooms, shower baths and offices. The main hall, which is twenty feet to the under side of the trusses, has an unobstructed floor area of 8,000 square feet. It is encircled by a suspended gallery, six feet wide.

The Pharmacy Building, about two hundred yards west of the Administration Building, is a two-story frame structure, containing two large laboratories, three lecture rooms, a machinery and drying room, a pharmacognosy room, store rooms, special laboratories and office. The whole building is amply lighted and ventilated, and affords adequate and suitable quarters for the department.

The Power Plant, a one-story brick building in the rear of Mechanical Hall, contains the requisite equipment for supplying the various buildings with heat, light and power. The apparatus installed in this building serves the purpose also of demonstration-equipment in these special lines.

Waldo Hall, the women's dormitory, occupies a commanding site one hundred and fifty yards southwest of the Armory. It is a large building of striking proportions, with a cement foundation and basement wall, and a cream-colored, pressed-brick superstructure, three stories high. The dimensions are 96x240 feet; and it contains one hundred and fifteen rooms for students, besides a kitchen, dining room, parlors and Domestic Science laboratories. It is modern in all its appointments and finished throughout in natural grain Douglas fir, stained to conform to the color scheme.

Cauthorn Hall, the men's dormitory, is a well-proportioned frame building, situated on a sightly spot in the extreme western part of the campus. It is 160x50 feet, has three stories and basement, and contains sixty-two rooms, besides a large kitchen, dining room and reception rooms. Though not so modern in its furnishings as Waldo Hall, its appointments are adequate and in harmony with its use. Each floor is supplied with hot and cold water, baths, electric light, and steam heat.

Shepard Hall. The new Y. M. and Y. W. C. A. building was completed in time for the opening of school last September. The total cost was something over $22,000. The original plans have been somewhat modified, giving, in many respects, a better building than planned at first. This building contains in the basement a swimming pool, shower baths, lockers, banquet rooms, kitchen, wood room, and accessories. The first floor contains a large lobby which is used for a reading room, game room for social events, and general assembly. It also contains an office for the General Secretary, a public office, a cabinet and check room combined, a room for the Y. W. C. A., and one to be used jointly by the Athletic Association and the staffs of the different College papers. The second floor contains six rooms for the use of the literary societies. The third floor is devoted for the present to dormitory purposes. The building is known as Shepard Hall, and is a fitting tribute to the memory of Clay Shepard, who gave his life to the cause of cleaner, higher and truer citizenship as exemplified in student life.

Farm Buildings. The College farm is now well equipped with farm buildings, and modern facilities for conducting practical and scientific work in animal husbandry.

The New Barn recently constructed is commodious, modern, and attractive in design. It is a frame building, with cement foundation and brick pilasters. The main part is 50x100 feet, two stories high, with two wings extending to the south, each 46x80 feet, one story in height. There is also a milk-room, an engine-room, and a fuel-room. The building is utilized as a general barn, and will accommodate nine horses and seventy cattle, with sufficient space for the storage of feed. On the first floor of the main portion are located the horse stalls, bins for storing the various grains and mill feeds, a seed-room and space for vehicles. The concrete basement is of sufficient dimensions to permit the storing of about one hundred tons of roots. The second floor has a storage capacity for one hundred tons of loose hay. A prominent feature of the barn is the cow stable. This is strictly modern, well lighted and well ventilated with concrete floor, thirty individual, tubular-iron, adjustable stalls, and two commodious box stalls. The aisles are wide, and thus not only furnish an abundance of air space for the animals, but they also afford visitors an excellent opportunity to view the stock. The milk and engine rooms are conveniently situated, but sufficiently isolated for proper sanitation. This building is lighted by electricity, well supplied with water, thoroughly sewered and furnished with an elaborate system of bell traps.

The old barns are relocated and remodeled so as to harmonize with the new structure. They contain rooms for housing machinery, sheds for fattening cattle, and a commodious piggery.

The Poultry Houses. On a ten-acre tract of land, lying southeast of Cauthorn Hall, and west of Waldo Hall, there have been erected several buildings specially planned for the needs of the department of Poultry Husbandry. These buildings comprise an incubator house, with a capacity of twenty-four incubators and complementary apparatus, and thirty colony houses for laying stock and growing chicks. The colony houses are movable and constructed upon a plan that could be adopted by any farmer. The colony brooding coops are also portable, and are used for investigations in both natural and artificial brooding.

EQUIPMENT.

It is impossible, in the brief space that is devoted to this topic, to give more than a bird's-eye view of the equipment of the institution. However, the following data have been so arranged as to give the prospective student a very good general idea of the comprehensive equipment that the institution possesses for carrying forward its designated work.

Agronomy. The new Agronomy Building provides spacious and finely lighted class-rooms, offices, laboratories, store-rooms and other facilities for this work. The large soil laboratory is newly equipped with the most modern apparatus for the study of the structure and the physical qualities of soils. Abundant desk and locker room is furnished for sections of fifty students, with running water, gas, compressed air, and electricity. Electric and hand centrifugal machines, electric shaker and soil sifter, compound microscopes, aspirators, compacting machines, electric air baths and steam water baths, thermometers, scales, analytic balances, soil sieves, tubes and cylinders of many kinds, pots and wire baskets, greenhouse room and chemical apparatus, form part of the equipment of the work in Soil Physics and Soil Fertility. Soil surveying and mapping outfits, soil survey charts of the United States and specimens of the chief soil types of Oregon and the United States are being assembled.

For the work in Crop Production another large laboratory is provided with special grain-judging compartment-desks, sufficient to accommodate sections of thirty students. Some of the chief apparatus used here for the several courses in this subject are general and special germinating chambers and plates, complete sets of compound microscopes, dissecting microscopes, and large mounted field lenses, seed-sampling and mixing-machines, grain receptacles of all kinds, grain-tester, etc. Each student is provided with samples of both the seed and the plant of all the chief varieties of field crops and weeds of Oregon and the United States.

Farm Mechanics is provided for in a separate building on the farm, fitted with shafting and power, and fully equipped with all types and classes of tillage implements, harvesting and power machinery, and farm engines of all kinds. Draining tiles, surveying instruments, tile and ditching tools are furnished for drainage work.

The Agronomy class rooms have demonstration-desks, lantern facilities, illustrative charts of various kinds and a new reference library.

Animal Husbandry. The barns and accessory buildings on the farm, used jointly with the department of Agronomy, meet the requirements for comprehensive work in Animal Husbandry. The stock available for illustration and demonstration purposes includes typical specimens of Jersey, Holstein, Guernsey, Ayrshire, and both beef and milk types of Shorthorn cattle; draft horses; Cotswold and Shropshire sheep; and Yorkshire and Berkshire swine. In addition to the college stock, students are afforded an opportunity to examine, score, test, and otherwise study the splendid specimens of the various other breeds kept by private breeders and stockmen on near-by farms. The department possesses extensive sets of lantern slides, maps, charts and the necessary minor apparatus for conducting the various lines of lecture, laboratory, field, and research work necessary to the broad courses of study in the several phases of Animal Industry.

Dairy Husbandry. This department occupies about one-half of the first floor of the Agricultural Hall. At the left of the main entrance is the office and recitation room, and to the right are located the dairy rooms proper. The main work room located in the northwest corner, is 24x44 feet, with cement floor sloping toward the center. This room is equipped with seven of the latest styles of cream separators, suitable for farm use. These machines are mostly loaned to the department, and are replaced whenever in the opinion of the dealers there have been important changes in the construction of later models. There are also combined churns and workers, box churns, table workers, receiving and ripening vats, pasteurizer and cooler, and the necessary apparatus for the manufacture of full cream Cheddar cheese.

Adjoining the main work room are lockers for students' use, a well-lighted boiler room equipped with vertical boiler and engine, and a wood and store room. In the northeast corner of the building is the testing laboratory, equipped with all the modern devices for testing milk and its products, such as hand and turbine Babcock testers, curd test, moisture-determination apparatus, cream scales, and automatic acid measures. Two commodious cheese curing rooms, 10x16 feet and 12x16 feet, respectively, complete the quarters of the Dairy Department.

Poultry Husbandry. The equipment of this department consists of a number of poultry houses of different types; about 300 fowls of several breeds and varieties, sixteen incubators of six different makes, bone and clover cutters, trap nests, cramming machine, and various other appliances that are necessary on a well-conducted poultry farm. There are also sets of charts, lantern slides and photographs, illustrating breeds of fowls, poultry farms and houses.

Horticulture. In the Horticultural Building are a large general laboratory, thirty feet square, containing the necessary equipment for instruction in plant propagation; a senior laboratory for the use of graduate students and other students interested in experiments and investigations; a drafting room for advanced students in landscape gardening; and a dark room for the use of students doing advanced work. In the office in this building are also to be found a fine collection of negatives and slides illustrating the many phases of Horticulture, and a good department library. Adjoining this building are the forcing houses; one of these being especially fitted for a green house laboratory for students in Floriculture, Olericulture, and Plant Propagation; the two adjoining houses contain plant materials for class study.

In the new Agronomy Building two rooms will be used for Horticultural purposes; one of these will be especially equipped for work in Pomology, while the other will be for general class purposes.

Domestic Science. This department is located on the basement floor of Waldo Hall, occupying the entire floor, except that part used for the hall dining room and kitchen. There are two large school kitchens, a lecture room, a science laboratory, and a room for instruction in home nursing, with proper furnishings to give practice in making and changing beds for the sick and the general care of the sick room. The school kitchens are equipped with work tables, cupboards, ranges, gas stoves and all necessary utensils and modern conveniences for teaching cookery. The dining room is furnished with an extension table, chairs, cupboards, china, silver and table linen. The department is also provided with a large laundry, equipped with stationary tubs, ironing boards, skirt boards and other necessary furnishings.

Domestic Art. A large portion of the second floor of the Agronomy Building is allotted to the work in Domestic Art, containing rooms for hand and machine sewing, cutting and fitting, millinery, household decoration, etc. The machine rooms are furnished with the latest improved machines; and the sewing rooms are provided with tables, electric irons, wardrobes and cupboards for holding unfinished work, large display cabinets for finished work, and cabinets for the collection of samples showing the processes of manufacture of cotton, wool, silk and linen.

Civil Engineering. In addition to joint use with the Mechanical department of the testing laboratories and blue print rooms described elsewhere, this department has for its exclusive use a suite of four well-lighted rooms, suitably arranged on the second floor of Mechanical Hall. This suite includes an office, a recitation and lecture room, an instrument room and a drafting and designing room.

The drafting and designing room, 28x47 feet, is well lighted and fully equipped with thoroughly modern and convenient drawing tables, supplied with individual lockers for instruments and other apparatus. The instrument room is equipped with lockers and convenient instrument racks; among the equipment of field and office instruments are the following: three engineer's transits with all necessary attachments, including one Burt solar attachment and one Saegmuller solar attachment; two light mountain transits, one with a solar attachment; one reconnaissance transit, three engineer's "Y" levels, one dumpy level, two plane tables with best equipment, one railroad compass, one current-meter with electric sounder and time-recorder, one planimeter, one standard steel tape, two Locke levels, one high-grade surveying barometer, pocket compasses, level rods, stadia rods, axes, chains, tapes, flag poles and other necessary articles, together with a well-selected assortment of specifications and blue-print plans of engineering structures for illustrative purposes.

Electrical Engineering. The laboratories of this department occupy the entire west half of the first floor of the Mechanical Hall. The equipment includes not only the generators, motors and other apparatus in the dynamo and electrical testing laboratories, but also the machinery in the College Light Station, which is as follows: one battery of three boilers for power and heating; two 12½ kilowatt 125 volt direct current dynamos, one 45 horsepower high-speed engine, one 30 kilowatt 1100 volt three-phase alternator, two 50 kilowatt transformers, one 5 panel switchboard. The latter piece of apparatus has connected to it all of the light and power circuits running to the several buildings; the trunk lines to the laboratories; and those to the 10,000 volt step-down transformers of the long distance three-phase transmission line, which are located in the engine room. The arrangement of switches is such that a current may be generated in the power house and at the same time high tension electrical energy may be received and distributed over any or all of the circuits.

In the dynamo laboratory are erected two large switchboards, on which are the terminals of the 110 and 220 volt single and three-phase alternating and 125-volt direct current mains, and from which run leads to the following machines: five 125-volt direct current motors, sizes varying from 6 to 10 horsepower; one 5 and one 10 horsepower 220-volt three-phase induction motor, one 7½ horsepower 220-volt two-phase induction motor, two 5-kilowatt 125-volt direct current dynamos, one 2 and one 10-kilowatt 125-volt double current generator, one 110,000-volt high tension testing transformer. One 6 horsepower high speed steam engine is in the laboratory and is used for driving small machines. The usual voltmeters, ammeters, electrodynamometers, wattmeters and lamp banks, for electrical measurements, are available, and in addition there is a set of instruments for calibrating purposes, including a standard testing set, millivoltmeters, manganin shunt and other apparatus. In a room especially fitted for demonstrations are two standard photometers, one of fixed and the other of portable type. A start has been made also in equipping electrochemical and telephone laboratories.

Mechanical Engineering. The department laboratories contain the apparatus necessary for the work in calibration, strength of materials, steam engineering and hydraulics. Among the more important pieces the following may be mentioned:

For strength of materials: A 50,000-pound Riehle universal testing machine, fitted with autographic recording device; a high-grade Riehle recording extensometer, a 1,000-pound Fairbanks cement testing machine and small apparatus consisting of the usual testing machine accessories and fittings.

For the work in steam engineering there is available the equipment of the College power plant, which consists of a bank of three fire tube boilers supplying steam to the heating system and to a 40 horsepower Ideal automatic high speed engine. This engine may be fitted for testing with a prony brake, indicators, calorimeters, etc. The plant also affords facilities for testing auxiliaries, such as feed pumps, injectors, feed water heaters, etc.

The College water supply is now taken from the city mains and the hydraulic tests are carried out at the pumping plant, which, with its large storage tank giving a head of sixty feet, has become a part of the laboratory equipment. In addition to the above there are available several steam pumps, exhaust fans, blowers and a number of small engines and boilers.

The Wood Shop, supplied with the best machines and tools the market affords, contains twenty-four double benches of modern design, accommodating forty-eight students. Each bench is provided with patent rapid action vises for holding the work, and is furnished with two sets of hand tools, consisting of rip saws, cut-off saws and back saws, planes, chisels, paring gouges, marking gauges, try squares, hammers, dividers and oil stones. The machine equipment of this shop consists of twenty wood-turning lathes, each furnished with a set of tools; one iron saw-table with rip and cut-off saws, one band saw, one jig saw, 24-inch surface planer, 16-inch glue joiner, four-sided 4-inch moulder, power mortiser and borer combined, post boring machine, swinging arm sander, two grindstones, one concave for gouges and one straight for plane irons and chisels; there are also two glue tables with clamps of various sizes and one steam and gas glue heater of three gallons capacity; the power is furnished by two 3-phase induction motors of 15 horsepower each.

The Forge Shop contains forty-two down-draft forges of the most improved pattern. Blast is furnished by a steel pressure blower driven by a 10 horsepower induction motor, and the smoke and gases are removed by an 80-inch exhaust fan, driven by a 20-horsepower motor. Each forge is provided with anvil, hammers, hardies, tongs and other small tools. There are also swedge blocks and vises at convenient points in the room for general use.

The Machine Shop contains one 24x24-inch iron planer, one 15-inch shaper, one universal milling machine, one universal tool grinder, one radial drill, one 20-inch drill press, one 20-inch engine lathe, one 16-inch engine lathe, five 14-inch engine lathes, two 10-inch speed lathes, one emery grinder, one automatic knife grinder and twelve bench vises. A 20-horsepower induction motor furnishes the power. A tool room adjacent contains the small tools, such as twist drills, taps, reamers, dies, calipers, gauges and scales. These tools are given out to students on the check plan.

Mining Engineering. This department occupies two buildings; the small structure south of the Administration Building contains the Mining Engineering office and recitation rooms, while the other, just west of the Administration Building, contains the laboratories in Geology, Mineralogy, Metallurgy and Assaying. The department possesses the following geological and mineralogical collections:

A Mineral Type Collection, consisting of about twelve hundred and fifty well characterized and labeled specimens used by the students for purposes of study and comparison; a Working Collection of minerals, consisting of about four thousand unlabeled specimens similar to those in the Type Collection used by the student for study and determination; an Exhibit Collection of minerals, consisting of large and attractive specimens of minerals and rocks; a Crystal Collection, containing about eight hundred natural crystal forms; a Crystal Model

Collection, consisting of forty-eight large glass crystal models and about five hundred wooden models used in the study of Crystallography; a Blowpipe Collection, containing minerals and materials used in blowpiping; the United States Geological Survey Educational Series of Rocks; a Working Collection of Rocks, containing unlabeled specimens for the use of the student in the work of lithology.

The assaying and metallurgical laboratory is equipped with two double muffle coal furnaces, two gasoline muffle furnaces, two gasoline crucible furnaces, one combination gasoline furnace, one Parr's Pyrometer, button balances, one of the new balances having a multiple rider attachment, pulp balances, cupel machines, crushers, grinders, sampling apparatus and all necessary appliances for a modern assay laboratory.

The department has recently received, through the generosity of the Hardsocg Wonder Drill Company, Ottumwa, Iowa, one Hardsocg Hammer Drill (Model 19c), with full complement of steel. The Ingersoll Rand Company of New York has also loaned to the department one new Davis Calyx Core Drill, a large machine drill used in prospecting. This machine is a very valuable addition to the mining equipment. The department also has a complete outfit of hand drilling tools.

Commerce. This department is completely equipped for thorough and efficient work in modern business courses. Each room is specially designed and furnished for the work to be conducted in it. The furniture of the department consists of individual desks and counters, a complete set of modern banking fixtures, a wholesale house, a retail house, a commission house, freight, real estate and insurance offices. Permanent blank books, letter files, rubber stamps, copying presses, college currency, blanks and similar material are provided by the College. The room for typewriting contains twenty standard machines, each provided with approved conveniences for the operator. The room for stenography is furnished with tables designed for convenience in practice work; also equipment for illustrating various systems of filing. The department of Political Economy is developing a commercial museum for use in the various courses in social science.

Pharmacy. In addition to the usual outfit of desk apparatus for the individual student, the department is supplied with a number of special pieces of apparatus for general use, as pharmaceutical stills, from the simple retort to the complicated vacuum still; drug mills, for hand and power; suppository machines, for fusion and for compression; tablet machines, mould and compression; pill machines; tincture presses; capsule filling machine; percolators and much minor apparatus.

Bacteriology. The equipment of the bacteriological laboratory consists of modern apparatus for teaching bacteriology in all its phases. There are compound microscopes of the highest grades, incubators, steam sterilizers, an autoclave, hot-air sterilizers, dissecting microscopes, microtomes, counting apparatus, hydrogen gas apparatus for growing anaerobes, water baths, centrifuges, paraffin baths, balances, dessicators, blood counting apparatus, fermentation tubes, test tubes, flasks and other glassware.

Botany. The botanical laboratories, occupying a suite of five rooms on the third floor of Agricultural Hall, are equipped with high grade apparatus of recent design. The herbarium of several thousand mounted and many thousands of unmounted plants is particularly rich in Oregon forms, while containing quite extensive collections of the New Mexico, California, Michigan, Washington and Alaska floras. Large and miscellaneous collections of mosses, fungi and lichens are being assembled. The collection of native and foreign wood specimens is of particular value in the forestry phase of the department's work.

Among the special technical apparatus of the department open to the use of every student prepared for the work are: a select collection of Brendel's models of typical forms of both flowering and flowerless plants; complete compound microscopes, simple and compound condensers, immersion lenses, electric slides, polariscopes, camera lucidas, micrometers, microtomes, paraffin and water baths, incubators, sterilizers, clinostats, hygrometers, osmosometers, potometers, photo-synthescopes, spectroscopes, respirometers, complete photographic outfits, projection lantern, large collections of photographs, microscopic mounts and lantern slides.

Chemistry. The department of Chemistry occupies nearly all of the south wing of the Agricultural Hall, and one room in the basement of the central portion. In this latter room, aside from desk space for seventy-two students, is a 150-light Terrill gas machine that supplies gas for the different laboratories throughout the building. The main lecture room is situated on the third floor, and has a seating capacity of one hundred and fifty. It is provided with lecture tables that are supplied with gas, electricity and water. Adjoining the lecture room is a small preparation room, in which is kept all special apparatus used for lecture demonstration, as well as supplies for the agricultural laboratory. This room is supplied with all the necessary apparatus for the proper elucidation of the principles of this branch of chemistry.

The organic laboratory is fitted for twenty-four students. Each student has a drawer and locker, a sink, a Richards' filter pump, a full set of reagent-bottles, individual gas and water outlets. Next to this laboratory is a room set apart for fuel and gas analysis and for photographic chemistry. The special apparatus of this room consists of Orsats' bulbs, and pipettes, Winkler's burettes, the latest forms of Hempel's bulbs, Victor Myers', Dumas', and Hoffman's apparatus for molecular weight determination, Beckman's cryoscope, Landsberger's ebulliscope, Parr's latest form of calorimeter, analytical and torsion balances, and the usual small pieces that accompany the above.

The largest room in the building is the main general laboratory, which will accommodate three hundred and ninety students, in four sections. Adjacent to this laboratory is a store room amply stocked with all necessary supplies and apparatus. The weighing room contains eight analytical balances of the best type for student use, and is well lighted and ventilated. The quantitative laboratory, which will accommodate seventy-two students in three sections, is in the basement, and adjoins the store room. It is fully supplied with various kinds of calibrated ware, as flasks, burettes, cylinders, urinometers, lactometers, hydrometers, and barometers; centrifuges for rapid separation of precipitates, blast lamps for fusions, muffles for incinerations, tables for glass working, and much minor apparatus.

For work in Agricultural Chemistry an entire room is set aside. This room is fitted with gas, water and electricity, condensers for distilled water, batteries, extraction apparatus for fats, nitrometers, Kjeldahl apparatus, hot water filtering apparatus, grinders for fodders, steam and air baths, calorimeter, polariscope, Westphal and analytical balances, coarse balances for rough work, hot-plates, and minor apparatus. This is one of the strongest divisions in the department and is lacking in nothing that makes a fully equipped agricultural chemical laboratory.

Physics. The physical laboratory has a good working equipment for the study of general physics, the apparatus being such as to allow a qualitative or quantitative verification of all of the important laws by the student. In addition to the equipment of the general laboratory, there are many pieces of apparatus intended mainly for class room demonstration. Instruments are also available for the usual work in electric measurements and the standardizing of electrical instruments.

Zoology. The laboratories of this department occupy the following seven rooms on the third floor of the Agricultural Hall: office, research laboratory for entomology and plant pathology, advanced students' laboratory, general laboratory, lecture room, store room, and photographic dark room. The general laboratory is equipped with thirty tables, each of which is provided with a compound microscope, a dissecting microscope and various minor pieces of apparatus. The lecture room is provided with an articulated skeleton; a dissectible human skull; a complete Azoux model of the human body; greatly enlarged Azoux models of the brain, eye, ear and other organs; a set of the celebrated Leuckart zoological charts, and a good supply of specimens and dissections for illustrating the work in zoology, entomology and physiology. The advanced students' laboratory contains the entomological collection, a portion of the department library and twelve desks fully equipped for advanced work; while the research laboratory contains desk facilities for the head of the department and three assistants. It is provided with high grade compound and dissecting microscopes, a Minot rotating microtome, a Minot automatic precision microtome, water bath, incubator, hot air, and steam sterilizers, 10x12 copying cameras, 5x7 view camera, 4x5 micrographic camera, laboratory balances, eye-piece, and stage micrometers, and an abundant supply of laboratory glassware, reagents and minor instruments.

The museum, which occupies most of the fourth floor of the Agricultural Hall, contains, in addition to a beautiful collection of native birds, a small collection of mounted mammals, a collection of bird skins from Alaska, a considerable collection of the eggs of native birds, a small collection of fishes and reptiles, a considerable number of marine invertebrates, including a small but beautiful collection of Philippine shells, an extensive collection of native insects, and numerous specimens of a miscellaneous nature.

Drawing. The department of drawing occupies two commodious class studios in the northwest corner of the second floor of Mechanical Hall. These rooms have north light, are perfectly heated and ventilated, and are well furnished with studio furniture—easels, drawing tables, portfolio racks and similar accessories. Both class rooms are equipped with cast forms for models; the collection is quite extensive and consists of casts of geometric figures and a carefully selected assortment of block-casts of hands, feet and heads; casts of architectural pieces, fruit, foliage, flowers, heads, masks, arms, hands and feet; and a number of full-figure pieces in full and bas-relief. There is also a good collection of still life objects for light and shade, pen, ink, and color study.

The Library occupies two-thirds of the second floor of the Administration Building. The reading and general reference room is large, well lighted, and extends entirely across the building, and is supplied with about two hundred leading magazines and newspapers. Through the courtesy of the editors, a large number of farm, orchard, stock and home journals and county newspapers of Oregon are received regularly at the reading room. The book stacks, occupying an adjacent room, contain about five thousand volumes of standard works of history, biography, engineering, agriculture, natural science, general literature and reference, and about 1,500 reports and other publications from the Agricultural Colleges and Experiment Stations of all the states, and ten thousand bulletins and pamphlets. It is a designated depository of United States Government publications, of which it has about five thousand volumes. Over two thousand of these were received as a gift from the library of the late United States Senator Dolph.

Practical use of the books has led to the establishment of small reference libraries kept in the rooms of the following departments: General Chemistry, Agricultural Chemistry, Animan Husbandry, Agronomy, Horticulture, Botany and Forestry, Bacteriology, Zoology, Pharmacy, Civil, Mechanical Electrical and Mining Engineering. Each department library is in charge of the head of that department, to whom application must be made for the use of the books.

All books are classified and catalogued according to the Dewey decimal system. Books may be drawn for home use by all officers and students of the College. Books may be kept by the students for two weeks with the privilege of a renewal, and by officers for any reasonable time. All students have free access to the shelves of the reference library in the reading room, but apply at the delivery desk for other works which they may desire.

The reference library consists of encyclopaedias, dictionaries and standard reference books in the different departments of study, together with books designated by professors for collateral reading in the various courses of instruction. A small collection of books for cultural reading is also kept in the reading room. In the same room and accessible to all readers is the card catalogue of the general library, including the books of the department libraries. The catalogue is one of authors and subjects under one alphabet on the dictionary plan.

The Gymnasium is equipped with lockers and dressing rooms with accommodations for a thousand men. In the shower-bath room, hot and cold water is available throughout the year. The floor of the gymnasium is surmounted by a balcony running-track, and a splendid playing space is provided for basket-ball and other indoor games.

The equipment includes horizontal bars, vaulting horses and bucks, parallel bars, swinging rings, dumb bells, Indian clubs, wands and chest weights. For those interested in combative sports, a wrestling mat is provided. The athletic field adjoining the gymnasium has within its bounds a quarter mile running-track, football gridiron and baseball diamond. Bleachers and grandstand accommodate the spectators.

THE EXPERIMENT STATION.

The Station bears an important relation to the College, as the scientific investigations conducted at the Station strongly support the instruction given in the class room. Aside from the original investigations of economic significance to agriculture, the work of the Station affords daily object lessons in modern farm practices.

About one hundred and fifty acres of land are devoted to the use of Station workers. This land is utilized by the various departments represented in the Station organization, including the departments of chemistry, agronomy, horticulture, animal husbandry, dairy husbandry, poultry husbandry, and entomology. Each department is actively engaged in the scientific investigation of problems presented by the different branches of agriculture..

As an illustration of the comprehensive character of this work, the following investigations, taken at random from the list of those now being conducted by the Station workers may be cited. The value of such work, as an object lesson to the students in the various fields of agriculture, can hardly be overestimated. There are experiments with long and short rotation systems for the improvement of soil fertility; tests to ascertain the adaptability and value of alfalfa for soiling and pasture; tests to determine the adaptability of kale as a winter succulent feed for dairy cows and other stock; experiments in breeding wheat for increase in both quantity and quality of yield and improvement in adaptation to soil and climatic conditions of the Willamette Valley; experiments in testing the value of irrigation in Western Oregon for general farm crops; tests for comparing the merits of Loganberries and Phenomenal berries; variety tests of strawberries; experiments in cross pollination of apples; co-operative work in the investigation of gummosis of the cherry; a study of the effects of the lime-sulphur spray under varying conditions; investigations of apple tree anthracnose, peach spot, potato blight, and celery leaf blight; a study of machine milking as compared with hand milking; investigations as to the relation of speed, the temperature, and the fat content of milk to the cream produced by hand separators; co-operative investigations with the department of bacteriology relative to the best manner of using "cultures" in butter and cheese-making; experiments in incubation to discover, if possible, the cause or causes of the great losses in artificial incubation; comparisons between hen-hatching and incubator-hatching; the humidity conditions of natural and artificial methods of incubation; carbonic acid gas as a factor in incubation; feeding experiments to determine the value of various forage crops and cereals for the growing and fattening of hogs; experiments in the feeding of dairy cows; experiments in grazing and fattening swine; investigations in the economical production of beef and mutton.

COLLEGE SOCIETIES.

One of the most important factors in rounding out the results and benefits of a college course is the society, club, or association work. Because of the diverse interests of college life and the varied tastes of the students, the following organizations are maintained by students and faculty:

The Student Body Assembly. This is an organization of the entire student body, working under a constitution and by-laws approved by the faculty, and having general authority over all student enterprises. In order to secure an effective administration of the business coming within its jurisdiction, there are permanent committees on athletics, publications, oratory and debate, and such special committees as the assembly may by vote determine. Officers are elected yearly, and nominations and elections are conducted in a manner similar to that of the state electorate.

The Literary Societies. These twelve organizations—Sorosis, Pierian, Feronian, Utopian, Clionian, and Adelphae, for women; and Amicitian, Jeffersonian, Philadelphian, Zetagathian, Athenaeum, and Hesperian, for men—have the common purpose of promoting literary work among the students. The weekly literary programs and occasional joint meetings tend to this end. To stimulate interest in debate and oratory, there are held during the year inter-society, inter-collegiate and interstate contests. Gold and silver medals are presented to the winners in the two latter events, and the successful society in the former receives the "Gatch Cup." This is the silver cup that was presented in 1901 by Dr. Thomas M. Gatch, then President of the College, to the society that had received highest honors in the season's debates. Annually this cup is to go to the successful society in the debates, but is ultimately to become the property of the society winning it three years in succession. Many and determined have been the battles for its possession, but the cup is still without a permanent home.

The Christian Associations. The religious work of the College is well cared for by the Young Men's and Young Women's Christian Associations, these organizations being particularly strong. The construction of Shepard Hall, the new student building, has materially increased the scope and added to the effectiveness of the work. The Associations aim to provide a moral atmosphere and pleasant social advantages for the students. Religious meetings are held in the rooms of these organizations every Sunday afternoon, and Bible Study classes are regularly conducted. On registration days, committees are on hand to assist students in adjusting their work satisfactorily, and securing comfortable quarters in good homes. Those who wish to make their way through college, will find the employment agencies always ready and glad to assist them as far as possible in procuring positions. For further information concerning these or other matters, address the General Secretary, Y. M. C. A., Corvallis.

The Athletic Association. This organization, maintained by the students through the student body assembly, encourages wholesome competition in the various outdoor and indoor sports and pastimes. It has charge of all details pertaining to the conduct of intercollegiate athletics in which the College may be interested. A committee of the faculty has general supervision over the whole subject of athletics, thus insuring a sound and conservative management.

The Oratorical Association. This body has immediate charge of all business pertaining to the competitive work in oratory and debate. Schedules, dates, prizes, conditions of competition and all similar matters are in its care.

The Dramatic Club. This club was organized for the purpose of offering special training in elocution and dramatic art. Membership is open to all students who desire to pursue work in these fields. Platform exhibitions will be given and standard plays presented during the College year.

The Sphinx. This is a senior honor society. Membership is acquired by election based on prominence in student activities and scholastic excellence.

The Camera Club. The aim of this organization is the advancement of "camera craft." The regular discussions cover topics pertaining to lenses, cameras, camera outfits, plates, films, printing papers, negatives, lantern-slides, transparencies, and general technique, photographs for scientific purposes, photographic illustration, and demonstrations of material and processes.

Vorwaerts. This is the German club, membership in which is restricted to students in second-year or advanced German. Its object is to familiarize its members with the use of German, especially in conversation. To this end, all conversation in the regular weekly meetings is carried on in this language, and programs consisting of German plays, songs, readings, and the like are features of the club work.

The Agricultural Club. This club was established for the purpose of advancing interest in the various phases of agriculture, and promoting the investigation and discussion of both general and special agricultural subjects. Suitable programs are prepared for each meeting, and whenever practicable, leading authorities on practical agriculture are engaged to address the members.

The Lewelling Club. This is the horticultural club conducted under the auspices of the Horticultural Department. There is no regular organization, except an executive committee, which has power to transact such business as requires action on the part of the club. It is open to all students interested in horticulture.

Delta Theta Sigma. There is established at this College a local chapter of this national honorary agricultural fraternity. The aim of the society is to advance the study of agricultural subjects by giving honorable recognition to students taking the lead in the work. Elections to membership are made by the faculty from the junior and senior classes.

The Forest Club. This is an association of students and instructors, "formed for the purpose of promoting the forestry interests of the State." In order to carry out its purpose, it meets twice each month for the discussion of current forestry literature, magazine articles, news items, legislation, and general progress movements pertaining to forests, forest service, forest products, forest industries, lumbering, and the lumber trade.

The Civil Engineering Club. This is an organization within the Department of Civil Engineering. The active membership is drawn from the junior and senior classes, and the privilege of associate membership is extended to the members of the two lower classes. It meets weekly for the discussion of subjects of interest to the civil engineer.

The Electrical Engineers. This is a College branch of the American Institute of Electrical Engineers. The aim of the organization is to discuss the topics contained in the monthly proceedings of the A. I. E. E., and in this way develop an intimate knowledge of the activities of the national organization, thereby coming into closer touch with the practical problems in the engineering world and thus becoming better fitted for their life work.

The Miners' Association. This body has for its object the discussion of technical engineering subjects; the review of current mining literature; the presentation of original papers by the active members; and occasional lectures on special mining topics by men outside of the College.

Mechanical Engineers. This is a College branch of the American Society of Mechanical Engineers. The purpose of the association is to keep in touch with the practical problems of the engineering world.

The Household Science Club. This is an organization for the purpose of bringing the girls of the Domestic Science and Art course into closer touch with each other and with the problems concerning their work. The meetings are devoted to the discussion of various questions in Domestic Science and Art, and to the presentation of lectures by authorities on these subjects.

The Commercial Club. This is a student organization within the School of Commerce. The purpose of the club is to bring its members into close relation with current methods and events in the commercial world. This is accomplished by discussions of topics pertaining to commerce by members of the club, and by addresses at various times during the year by men prominent in the fields of law and business. Active membership is open to the juniors and seniors of the school, and associate membership may be enjoyed by the underclassmen.

Science Club. This club is an association of faculty members and students who are interested in scientific work. It meets once a month for the purpose of discussing scientific subjects. Membership is open to all students taking work in the sciences.

The Pharmaceutical Association. The main purpose of this organization, which consists of the pharmacy students, is to bring its members into close relation with the current events of the pharmaceutical world. This is brought about by discussions in the meetings of topics pertaining to pharmacy, and by addresses at various times during the year by prominent pharmacists and salesmen of the State.

COLLEGE PUBLICATIONS.

Two classes of publications are issued from the College; one, official, published by the College authorities; the other, unofficial, and published by various student organizations.

The College publications include:

The Catalogue. Published at the close of the College year and containing much general and specific information as to the courses of study, equipment and instruction;

The Summer School. The announcements contain specific information of expenses, courses of instruction, character of the work presented, and the requirements that prospective students must meet;

The Winter School. The announcements carry such information regarding the winter courses as may fully present the advantages of these courses to the public;

The Department Circulars. These contain specific and technical information, relating to the courses of study, departmental instruction, and those features of particular interest that appeal to the specialists along the several lines of industry represented by the various departments of the College;

The Station Bulletins. A series of special reports upon experimental investigations in agronomy, horticulture, dairying, animal husbandry, poultry husbandry, insect pests, plant diseases, and special subjects of interest to the husbandman.

The student publications comprise:

The Barometer. In March, 1896, the literary societies of the College began the publication of a monthly periodical, the "College Barometer." The enterprise has met with deserved success, and "the organ of the student body" is now issued as a four page, four column weekly. It publishes the "news of the College," literary and scientific articles, and is of general public interest as representing the interests, character and accomplishments of the student body of the College.

The Orange. The annual publication of the junior class, and made its initial appearance in 1907. It is a high-class publication, bound in flexible leather, and fully illustrated with photo engravings, pen and ink sketches, line and wash drawings. It is a compendium of college life as seen by the juniors, brimful of wit, humor, sarcasm, sentiment and good will.

The Oregon Countryman. A monthly magazine published by the Agricultural and Domestic Science and Art students under the supervision of the faculties of these courses. Besides dealing with the work of the various departments in a practical manner, it contains articles of scientific value contributed by the Experiment Station workers. Successful men and women of the State contribute articles for each issue. Agricultural education in the secondary schools and nature-study work are strong features.

The Northwest Journal of Engineering. A magazine devoted to engineering and the mechanic arts. Its purposes are to record the engineering progress in the Northwest; to furnish news; to discuss methods relating to the mechanic arts; to publish records of scientific work done by the students in this institution; and to publish any matter of special technical and scientific interest. Items of interest will be found for Civil, Mining, Mechanical, and Electrical Engineers, and for others who are engaged in technical pursuits. The journal is under the supervision of the faculty of the School of Engineering and Mechanic Arts, but the work and responsibilities of publication are borne by the staff, elected by the students of the School of Engineering.

STUDENT EXPENSES.

FEES.

Tuition is free. The regular College fees required of all students, with the exception of special students in Music, are as follows:

Entrance fee, payable annually on registration	$5.00
Diploma fee on graduation	5.00
Incidental (Student) fee, payable each semester	2.00
Entrance fee for Winter Short Courses	1.00

Students are charged small fees in the different laboratory courses to cover the cost of material used; and deposits are required to cover cost of breakage in laboratory courses where breakages are likely to occur. These fees are payable at the beginning of each semester. At the end of the semester deduction is made for actual breakage and the balance of the deposit is refunded to the student. The fees and deposits charged each semester in the different courses are as follows:

	Fees.	Deposits,
Agronomy—		
Courses 3, 6, 9, 12, 14	$1.00	
Course 5	1.00	$2.00
Course 11	1.00	3.00
Dairy Husbandry—		
Courses A, B, 2	1.00	1.00
Course 1	1.00	2.00
Courses 3, 8, 10	1.00	
Course 11	2.00	3.00
Horticulture—		
Course 1	1.00	
Course 11	2.50	
Forestry—		
Courses C, D	1.00	
Course 2	1.50	
Course 8	2.50	
Summer Camp	5.00	
Civil Engineering—		
Courses 1, 3, 5, 7	1.00	
Electrical Engineering—		
All laboratory courses	2.50	3.00
Mechanical Engineering—		
Courses 11, 12	2.50	
Mining Engineering—		
Courses 2, 4, 8	1.00	
Courses 1, 2	5.00	
Course 6	2.00	
Course 12	10.00	

Shopwork—		
Courses A, B, C, D, E, F, G, H, I, and 9, 10, 12, 13	3.00	2.00
Courses J, K, 5, 6	3.00	
Courses L, 7, 8	2.00	
Courses 1, 2, 3, 4, 11	2.00	2.00
Domestic Science—		
Courses A, B, C, D, 1, 2, 3	3.00	
Courses G, H, 6, 7	.50	
Courses 4, 5	1.00	
Courses 8, 9	3.50	
Courses 12, 13	.50	1.00
Domestic Art—		
Courses A, B, C, D, 1, 2, 6, 7, 8, 9, 10, 11, 12	.50	
Courses 4, 5, 14, 15	2.00	
Course 12	.50	1.00
Course 3	.50	2.00
Business Administration—		
Courses A, B, C, D, E, F, 1, 2, 3, 4, 9	1.00	
Stenography—		
Courses A, B, C, 1, 2, 3, 4, 5, 6	2.00	
Penmanship—		
Course 1	1.00	
Pharmacy—		
Courses 6, 7, 9, 10	4.00	1.00
Zoology, Entomology, and Physiology—		
Courses 1, 2, 3, 4, 5, 6, 7, 8, 10, 11, 12, 13	1.00	
Courses 9, 16, 17	.50	
Chemistry—		
Courses 5, 7, 8, 10, 12, 13, 14, 15, 17, 18	3.00	2.00
Courses 1, 2, 3	3.00	1.50
Course 4	4.00	1.00
Course 6	4.00	2.00

Botany—		
Course A		1.50
Courses 1, 2	.50	
Courses 3, 4		2.00
Courses 5, 7, 8		2.50
Course 6		1.00
Physics—		
Courses A, B, 1, 2	.75	
Courses 3, 4	1.50	
Courses 5, 6		2.00
Drawing—		
All courses in Freehand Drawing	.50	
Physical Education—		
All courses	1.50	
Winter Short Courses—		
Ten weeks' course in Dairying	2.00	3.00
Mechanic Arts—		
Woodwork	2.00	
Blacksmithing	2.00	
Domestic Science and Art	1.50	

BOARD AND ROOM.

Board and room accommodations may be had either in private family or in the College dormitories.

Women's Dormitory. Waldo Hall, with its large, airy parlors, halls, music and play rooms, is a pleasant residence for the young women who come from distant homes. The building is supplied throughout with pure mountain water, hot and cold in each room, electric lights, steam heat and all modern conveniences. The rooms are furnished with an iron bedstead, a mattress, a chiffonier, a table, and chairs. Such other materials as are needed to make the furnishings complete, including pillows, pillow cases, sheets, blankets, bed spread, are furnished by the student; and many of the students prefer to make the rooms more homelike by bringing rugs, curtains, pictures, sofa cushions, etc. These latter articles, however, are not at all necessary. The rooms are cheerful and comfortable without additional furniture. The bed rooms average about 12 feet by 15 feet, with one window 3 feet by 7 feet. Many of the rooms are larger, and a few of them have two windows. Each student also furnishes her own towels and table napkins. Students who room together may choose to have a double bed or two single ones. Their preference must be indicated with application for a room. No definite promise for a single room can be made, the privilege of rooming alone depending upon the number of applications for rooms. The many advantages of having a room-mate should not be overlooked by the student in making her plans for her college life.

The conditions of living in Waldo Hall are such that the College considers it a distinct advantage to the women students to live in the dormitory. A wholesome, busy, student atmosphere is maintained. Reasonable freedom is allowed, but week nights are reserved for study. All girls entering the College are expected to live in the dormitory unless their parents reside in the city, or they are given special permission to live with relatives or friends who assume the responsibility of their care.

The expenses of living in Waldo Hall are as follows:

Room deposit	$3.00
Room rent per semester—	
Single room	7.50
Double room	5.00
Board per week, payable monthly in advance	3.50
Use of laundry, per semester	.50

Men's Dormitory. Cauthorn Hall, as a home for young men while in College, offers many inducements. There is room for 100 students. Accommodations in this Hall are similar to those described for the Women's Dormitory, the rooms being furnished with iron bedstead, mattress, chiffonier, table, and chairs. Students furnish bed clothing and other articles as desired. The Hall is conducted on the club plan, all business connected with the management of the Club being in the immediate charge of a Manager and Steward elected by the members of the organization. This plan has proved to be a very popular and successful one. All supplies are purchased in large quantities and to the best possible advantage, thus reducing to a minimum the running expenses of the organization. Each member of the Club pays his proportion of the actual expenses, which during the past year, including room rent, board, heat, light, entertainments, etc., have averaged $3.65 per week. The expenses for next year will no doubt be approximately the same.

Private Board. Board and room may be secured in private family in the City of Corvallis for from $3.50 to $4.50 per week. Good accommodations for self-boarding, or for club-boarding, can also be secured in the city. By clubbing, or renting rooms and boarding themselves, students materially reduce the cost of living. Students, however, will not be permitted to live at places not approved by the Faculty.

PERSONAL EXPENSES.

The personal expenses of students vary. Many students are able to go through the College year on a comparatively small amount. Books, including drawing instruments, will amount to between $10 and $25 per year. Each male student is required to supply himself with military uniform immediately upon registration, the cost of which will be approximately as follows: suit and cap, $15; tan shoes, $3.25; leggings, $1; gloves, 25c per pair; total, $19.50. The uniform is very serviceable and is more economical than civilian clothing. Women pursuing work in physical culture are required to provide themselves with a gymnasium suit, consisting of blouse waist and bloomers, with the regulation gymnasium shoes; the cost of the suit will be about $3.50. This suit should be serviceable for a number of years. The students in Domestic Science work provide themselves with cookery costume, consisting of dull blue dress, with white cap and apron. Students may make their own costumes, under the direction of the instructors in Domestic Art. The material will cost approximately $5.

SELF-SUPPORT.

Each year a number of students earn part or all of their expenses. The College employs a number of students in janitorial, farm, orchard, campus, laboratory, and clerical work. The two Christian Associations, the Y. M. C. A. and the Y. W. C. A., conduct an employment bureau; and, with the assistance of the College officials, do everything possible to TEN—10530 thm thm etashrdlu etaoshrdlu etaoshrdlu upjpup help worthy students in the matter of securing employment. The policy of the College is to reduce all necessary expenses to the minimum, and in this way to aid those whose means are limited. In this respect the conditions are favorable; but it is advised that persons entering the institution have definite resources sufficient to meet their expenses for a time at least. Students who desire to file their application for employment should write to the Secretary of the Y. M. C. A., care of the Oregon Agricultural College.

CONDITIONS OF ADMISSION.

SECONDARY COURSES.

To enter these courses, applicants must have completed the work required in the eighth grade of the public schools. These courses are established for the benefit of persons who desire industrial training; and no students will be admitted to them except those who live in parts of the State where no provision is made in the public high schools for industrial work. The minimum age of those entering the Secondary courses in Agriculture, Forestry, Mechanic Arts, Domestic Science and Art, and commerce; and the special winter courses in Agriculture, Mechanic Arts, and Domestic Science and Art, is fifteen years. Those entering as special students must be at least eighteen years of age.

Good moral character is a requisite for admission. Students from other colleges or universities are required to furnish from those institutions certificates of honorable dismissal.

DEGREE COURSES.

For admission to the freshman class in any course in the College, the applicant must be at least sixteen years of age and must have completed all the subjects prescribed in the first and second years of the Oregon State high school course, or their equivalent. Applicants who have not completed Plane Geometry and Drawing will be given an opportunity to make up such deficiency during their freshman year.

The following credits are entrance requirements for admission to the freshman year: English 2, Algebra 1½, Plane Geometry 1, Drawing ½, Bookkeeping ½, Electives 3½. A credit represents the work of thirty-six weeks with five recitations a week and forty-five minutes to the recitation. Certificates from accredited high schools and academies will be accepted in lieu of examinations. Students who have completed any of the Secondary industrial courses offered by the College may be admitted without examination to the corresponding degree courses.

LIST OF ACCREDITED SCHOOLS.

High Schools.

Albany
Ashland
Astoria
Athena
Baker City
Bandon
Bay City
Bend
Bonanza
Brownsville
Burns (County)
Canyon City
Central Point
Coburg
Condon
Corvallis
Cottage Grove
Dayton
Echo
Elgin
Enterprise (County)
Eugene
Frankton
Grants Pass
Haines
Hermiston
Independence
Island City
Jefferson
Klamath Falls (County)
La Grande
Lakeview
Lebanon
Marshfield
Medford
Newberg
North Bend
Pendleton
Portland
Prineville (County)
Salem
Silverton
Springfield
The Dalles
Tillamook
Union
Woodburn

Academies.

Portland Academy
The Allen Preparatory School
The Hill Military Academy
Pendleton Academy
Tualatin Academy

ENTRANCE REQUIREMENTS.

English.

The examinations in English will include questions in grammar and elementary rhetoric and, in addition, one or more essays, to test the student's readiness and accuracy of expression.

One of the essays, to be written at the examination, will be on some theme connected with one or more of the books in the following list:

Burke's Speech on Conciliation with America
Shakespeare's Julius Caesar
Shakespeare's Merchant of Venice
Macaulay's Essay on Addison
Macaulay's Essay on Johnson
George Eliot's Silas Marner
Coleridge's The Ancient Mariner
Carlyle's Essay on Burns

In every case, knowledge of the book will be regarded as less important than the ability to write good English.

The other test in composition will consist of the writing of two paragraphs of about one hundred and fifty words each on some familiar topics, to test the applicant's ability to use the English language. These topics will be chosen by the candidate from a considerable number, perhaps six or eight, set before him in the examination paper. There should be correct spelling, capitalization, punctuation and paragraphing. Applicants notably deficient in any one of these fundamentals can not be accepted.

Read three or more books from the following list for 1911:

Irving's Life of Goldsmith
Dickens' A Tale of Two Cities
Goldsmith's The Vicar of Wakefield
Bunyan's The Pilgrim's Progress
Emerson's Essays (selections)
Hawthorne's The House of Seven Gables
Thackeray's Henry Esmond
Stockton's Rudder Grange
Burroughs' Essays (selections)

Candidates presenting exercise books containing compositions or other written work properly certified to by the instructor, will be given credit for such work.

Mathematics.

A thorough working knowledge of the following topics in Algebra is required: addition, subtraction, multiplication and division of positive and negative numbers, use of parentheses, factoring, highest common factor, lowest common multiple, fractions, fractional and literal equations, simultaneous equations, problems involving linear equations with one or more unknown numbers, graphical representation of simultaneous linear and quadratic equations, involution, evolution, theory of exponents, radical expressions, imaginary numbers, quadratic equations, problems involving quadratic equations with one unknown number, equations in the quadratic form, factoring of quadratic equations, solution of quadratic equations by factoring, simultaneous quadratic equations, problems involving simultaneous quadratic equations, with two unknown numbers.

The requirements in Plane Geometry are the five books of Wentworth's Plane Geometry, or of any other standard text on the subject. That the student may be trained to think for himself, and not be dependent upon the published proofs of the text, much importance is placed upon the proving of original exercises. It is strongly advised that students preparing for entrance examination in Geometry, devote considerable time to the study of original exercises.

Bookkeeping.

The entrance requirements in Bookkeeping are, a thorough knowledge of the rules of journalizing; posting; drawing and interpreting simple commercial forms.

Drawing.

Students having one-half credit in drawing will be admitted to the freshman year without condition as stated under Entrance Requirements. All others will be required to take Drawing A and B or C.

ADVANCED STANDING.

Certificates of work completed in other institutions of recognized standing may be received in lieu of examinations for advanced standing, to the extent that such work is equivalent to the corresponding work required in the College courses.

SPECIAL STUDENTS.

Persons of the required age may be admitted as special students, provided they give satisfactory evidence of proper preparation for the studies desired, and have not already been admitted to the College, nor, having applied for admission, been rejected. Special students may be allowed to graduate in any of the courses on condition that they complete the required work and pass the necessary examinations.

IRREGULAR STUDENTS.

Applicants who meet all the entrance requirements may be admitted as irregular students, upon presenting satisfactory evidence that they are unable, because of poor health, or outside business or professional duties, to take a full course.

REGISTRATION.

All candidates for admission must present themselves for registration at the College on September 24 and 26, 1909. Registration at a later date will be permitted only on the presentation of a satisfactory reason for the delay. Students in all courses register at the beginning of the collegiate year for the work of the entire year. Credit for work not so registered, and changes in registration, will be allowed only by special permission of the College Council.

GRADUATION.

The degrees of Bachelor of Science in Agriculture, in Forestry, in Domestic Science and Art, in Civil Engineering, in Electrical Engineering, in Mechanical Engineering, in Mining

Engineering, in Commerce, and in Pharmacy, are conferred upon those who have satisfactorily completed the respective four-year courses. A graduate in any of the courses may receive the bachelor's degree in any other course by completing the studies required in that course.

Advanced degrees are conferred upon graduates of this College, or other colleges and universities of approved standard, as follows: (1) Civil Engineer (C. E.), Electrical Engineer (E. E.), Mechanical Engineer (M. E.), and Mining Engineer (E. M.), upon those who have satisfactorily completed one year's graduate work in the respective engineering courses; (2) the degree of Master of Science (M. S.) in Agriculture, in Domestic Science and Art, in Civil Engineering, in Electrical Engineering, in Mechanical Engineering, and in Mining Engineering, upon those who satisfactorily complete two years' graduate work in the respective courses, at least one of which shall be in residence at the College, and who prepare a thesis, based upon original research, which shall show scholarly acquirements of a high order.

COURSES OF STUDY.

The Oregon Agricultural College offers the following courses of study, each of which extends over four years, and leads to the degree of Bachelor of Science: Agriculture, including degree courses in Agronomy, Animal Husbandry, Dairy Husbandry, Horticulture, Poultry Husbandry, Veterinary Science, Agricultural Chemistry, Bacteriology, Entomology; Forestry; Domestic Science and Art; Mechanical Engineering; Electrical Engineering; Mining Engineering; Civil Engineering; Commerce; Pharmacy.

In addition to the above courses, provision has been made for the following secondary courses: Two-year courses in Agriculture, Forestry, Mechanic Arts, Domestic Science and Art, and Commerce.

During the year there are also offered the following short courses: A six-week course in Dairying; a six-week course for Forest Rangers; a review course for Farmers and a six-week Summer School for Teachers.

COURSES IN AGRICULTURE.

The School of Agriculture offers a two-year course in secondary Agriculture; a four-year course leading to the degree of Bachelor of Science; a six-week winter course in General Agriculture; a six-week winter course in Dairying; a six-week winter course in Horticulture; and a Farmers' Week.

The **two-year course** is provided specially for those who have no opportunity to pursue their public school course beyond the eighth grade, or who from necessity or choice, desire, upon completing the work of this grade, to obtain as quickly as possible a working knowledge of the principles of agricultural science and practice. The technical instruction given during the course includes courses in Agronomy, Animal Husbandry, Horticulture, Dairy Husbandry, Botany, Physiography, Business Administration, Drawing, Woodwork and Blacksmithing. Courses in English, Mathematics and History are provided so that students who finish these subjects and who so desire will be fully prepared to enter upon the degree course. This course also offers exceptional opportunities to teachers who desire to prepare themselves to teach elementary agriculture in the public schools. Such persons, if they so desire, may, upon registering as Special Students, be allowed to elect a full complement of courses in Agricultural and Industrial Pedagogics, and thus be enabled to obtain a maximum of technical training in a minimum of time.

The **four-year course** is a continuation of the Secondary course, but students who have completed the work of the tenth grade of the public schools, including Plane Geometry and Drawing, will be permitted to register without conditions.

The various subjects of instruction may be conveniently arranged into three groups, each of which requires approximately one-third of the student's time: (a) Sciences related to agriculture, i. e., Botany, Zoology and Entomology, Chemistry, Physics and Bacteriology; (b) technical agricultural subjects, i. e., Agronomy, Animal Husbandry, Dairy Husbandry, Horticulture, Poultry Husbandry and Veterinary Science; (c) nontechnical subjects, i. e., English Language and Literature, Mathematics, History, Economics, Modern Languages, Drawing, and similar subjects.

The subjects of the first group are designed to furnish the student with an insight into the principles of agricultural science. In the second group he learns of the application of these principles and also studies, both theoretically and practically, various subjects of agricultural technology. The subjects of the third group tend further to develop the student's intellect, broaden his view, and train him in good citizenship.

To indicate briefly the nature of the work, it may be stated that in the courses in Agronomy the student studies the origin, structure, fertility, cultivation, and improvement of various soils; the history, growth, culture, improvement, and value of the different field crops; the structures, machinery, drainage, and irrigation of the farm; and the history, economics, methods, and business principles of farm management. There is also thorough course in Business Administration, which will b given by the Department of Commerce. In the course i Animal Husbandry, consideration is given to the history an characteristics of the various breeds of live-stock; the principles of breeding; the principles and practices of feeding with particular reference to conditions in this State; and by almost constant practice in stock judging the student is made familiar with the good points of the various breeds. In Horticulture the student studies the problems of the orchard and garden, such as choice of site, soils, planting, pruning, choice of varieties, sprays and spraying, and thinning; he obtains instruction and practice in the propagation of plants by various methods; in the harvesting, packing, storage and marketing of fruits; he may study the principles of plant breeding or the construction and management of greenhouses or the culture of small fruits and vegetables for market or canning purposes. In Dairy Husbandry he studies the secretion, composition, and separation of milk; the proper handling of milk and cream; and obtains abundant practice in the use of the Babcock and other tests, in butter and cheese making and in creamery practice. A department of Poultry Husbandry has recently been organized, and now offers to students exceptional opportunities to specialize in this line. The instruction will include a study of breeds, the principles of feeding, housing and incubation, and will be supplemented by practical work on the farm. The organization of a department of Veterinary Science has been authorized by the Board of Regents.

The courses extending through one and six weeks are year courses is to train young men to become successful farmers, stockmen and fruit growers; to prepare them to become specialists in some branch of agricultural college or experiment station work; or to fit them to become teachers of agriculture in the public schools. In short, they offer to those who have faith in the farm and in rural life opportunities for intellectual development and technical training equal to those provided for the educated in other professions.

The courses extending through one week and six weeks are designed for special purposes, and it is the aim in each to furnish the greatest amount of special information in the least possible time. They are provided especially for those who desire technical training in some particular phase of agriculture, but have not the time nor the opportunity to pursue either of the degree courses.

SECONDARY COURSE IN AGRICULTURE.

First Year.

	Semesters, 1st.	2nd.
Advanced Grammar I, II (English A, B)	3	3
Classics I, II (English C, D)	2	2
Algebra I, II (Mathematics A, B)	5	5
Ancient History (History A)	3	
Mediaeval and Modern History (History B)		3
Elementary Drawing (Drawing A)	2	
Scientific Drawing I (Drawing C)		2
Soils (Agronomy A)	1	
Crops (Agronomy B)		1
Stock Judging (Animal Husbandry A)	2	
Farm Dairying I (Dairy Husbandry A)		2
Elementary Orchard Practice (Horticulture A)	2	
Elementary Plant Propagation and Vegetable Gardening (Horticulture B)		2
	20	20

Second Year.

Rhetoric and Composition I, II (English E, F)	3	3
Classics III, IV (English G, H)	2	2
Algebra III, Plane and Solid Geometry (Math. C, D, E)	5	5
Business Methods for Farm and Shop I, II (Bus. Ad. E, F)	2	2
Farm Dairying II (Dairy Husbandry B)	2	
Farm Mechanics (Agronomy C)		2
Veterinary Science (Animal Husbandry B)	1	
Practical Stock-Feeding (Animal Husbandry C)		2
Ecology (Botany B)		2
Physiography A	3	
Woodwork V (Shopwork G)	2	
Blacksmithing III (Shopwork L)		2
	20	20

DEGREE COURSE IN AGRICULTURE.

Freshman Year.

	Semesters, 1st.	2nd.
Rhetoric (English 1)	3	
Advanced Rhetoric (English 2)		3
Advanced Classics and Reading I, II (English 3, 4)	2	2
Trigonometry (Mathematics 1)	3	
Inorganic Chemistry (Chemistry 1)	4	
General Chemistry II (Chemistry 3)		4
Morphology of Higher Plants (Botany 1)		3
Biology (Zoology 1)	3	
Basic Agronomy (Agronomy 1)	3	
Crop Production (Agronomy 2)		2
Plant Propagation (Horticulture 1)		2
Stock Judging II (Animal Husbandry 1)		2
Woodwork X (Shopwork 4)	2	
Blacksmithing VI (Shopwork 7)		2
Library Practice	1	
Hygiene (Physical Education 7)		1
	21	21

Sophomore Year.

General Physics I, II (Physics 3, 4)	4	4
French I, II; German I, II; Spanish I, II; (Mod-Lang. 1, 2; 7, 8; 13, 14)	4	4
Rural Economics (Political Economy 10)		3
Plant Anatomy (Botany 4)	3	
Zoology I, II (Zoology 2, 3)	3	3
Drainage and Irrigation (Agronomy 3)		3
Live Stock Management (Animal Husbandry 2)		3
Milk and Cream Testing (Dairy Husbandry 1)	2	
Orchard and Garden Practice (Horticulture 2)	3	
Elementary Bacteriology (Bacteriology 1)	1	
	20	20

Junior Year.

The Composition of Public Addresses (English 5)	1	
Argumentative Themes (English 6)		1
Franch III, IV; German III, IV; Spanish III, IV; (Mod. Lang. 3, 4; 9, 10; 15, 16)	4	4
Theoretical Instructions I, II (Military Science 1, 2)	1	1
Major Elective	5	5
Minor Electives	7	7
	17	17

Senior Year.

Oratorical Themes and Delivery (English 7)	2	
Expression and Style (English 8)		2
The Essay (English 11)		3
Exposition and Argumentation (English 10)	3	
Theoretical Instruction III, IV (Military Science 3, 4)	1	1
Major Elective	5	5
Minor Electives	6	6
	17	17

All students working for degrees will be required to carry 17 credits throughout the Junior and Senior Years. Subjects other than those prescribed must be elected upon consultation with the head of the department with whom the major is taken. The major must be elected in one of the following departments: Animal Husbandry, Agronomy, Dairy Husbandry, Horticulture, Poultry Husbandry, Agricultural Chemistry, Bacteriology or Entomology. The minors may be elected from any of the above departments, or from the departments of English, Mathematics, Botany, Physics, Commerce or Civil Engineering. Students who so desire may elect a course in General Agriculture upon consultation with the Agricultural Committee of the Faculty.

COURSES IN FORESTRY.

One of the greatest natural sources of wealth to Oregon is her forests. In establishing a course in Forestry at this College, the aim has been to meet the demands of the public for men specially trained for the work of promoting the forest interests of the State. Realizing that great progress and development have been made within the past few years in the conservation and utilization of the forest crop, and that Oregon has an enormous forest wealth, there is a strong call for a force of young men competent to develop and manage forest properties and especially trained for work in forest protection, conservation, utilization and development.

To meet such needs the College has provided a regular degree course of four years, which is to be supplemented with winter and summer short courses. While the leading course aims to provide students with a technical training, it does not lose sight of the fact that a College graduate and a forester should have a well-rounded education equipping him for efficient citizenship as well as for a special occupation. To this end the course of study covers a field of work somewhat more liberal than a purely technical course would cover. At the same time the short courses, and particularly the summer course, which is altogether field practice in general forestry, round out the student's training in the technical branches of the subject. Besides offering the student opportunities to secure a liberal and technical education in the general subject of forestry, it also affords him, through its various departmental laboratories, a wide range of privileges in the pursuit of special information upon particular topics, as construction work, timber technology, forest engineering, forest regeneration, tree-growth and tree-culture, the chemistry of forest products, utilization of forest waste, animal husbandry, forest protection, tree- and timber diseases and pests, timber preservation, destructive distillation; and such other technical topics as appeal to the tastes of the individual student, the purpose being to educate and train a force of men competent to develop the forest interests of the State in their every phase, whether of public or private ownership.

SECONDARY COURSE IN FORESTRY.

First Year.

	Semesters, 1st.	 2nd.
Advanced Grammar I, II (English A, B)	3	3
Classics I, II (English C, D)	2	2
Algebra I, II (Mathematics A, B)	5	5
Ancient History (History A)	3	
Mediaeval and Modern History (History B)		3
Elementary Drawing (Drawing A)	2	
Scientific Drawing I (Drawing C)		2
Typewriting I, II (Stenography C, D)	2	2
Elementary Principles I, II (Forestry A, B)	3	3
	20	20

Second Year.

Rhetoric and Composition I, II (English E, F)	3	3
Classics III, IV (English G, H)	2	2
Algebra III, Plane and Solid Geometry (Math. C, D, E)	5	5
Sylviculture I, II (Forestry C, D)	2	2
Ecology (Botany B)		2
Veterinary Science (Animal Husbandry B)	1	
Business Methods for Farm and Shop I, II (Bus. Ad. E, F)	2	2
Mechanical Drawing I (Mechanical Engineering 1)	3	
Woodwork V (Shopwork G)	2	
Blacksmithing III (Shopwork L)		2
Range Management (Animal Husbandry 6)		2
	20	20

DEGREE COURSE IN FORESTRY.

Freshman Year.

	Semesters,	
	1st.	2nd.
Rhetoric (English 1)	3	
Advanced Rhetoric (English 2)		3
Advanced Classics and Reading I, II (English 3, 4)	2	2
Trigonometry (Mathematics 1)	3	
Surveying I (Civil Engineering 1)		5
Inorganic Chemistry (Chemistry 1)	4	
General Chemistry II (Chemistry 3)		4
Special Morphology (Botany 2)		4
Biology (Zoology 1)	3	
The Forest (Forestry 1)	3	
Woodwork X (Shopwork 4)	2	
Blacksmithing VI (Shopwork 7)		2
Library Practice	1	
Hygiene (Physical Education 1)		1
	21	21

Sophomore Year.

General Physics I, II (Physics 3, 4)	4	4
French I, II; or German I, II; or Spanish I, II (Mod. Lang. 1, 2; 7, 8; 13, 14)	4	4
Zoology I, II (Zoology 2, 3)	3	3
Morphology of Lower Plants (Botany 3)		2
Anatomy (Botany 4)	4	
Physiology (Botany 8)		3
Dendrology (Forestry 2)	5	
Forest Industries (Forestry 3)		4
	20	20

Junior Year.

The Composition of Public Addresses (English 4)	1	
Argumentative Themes (English 5)		1
French I, II; or German I, II; or Spanish I, II (Mod. Lang. 1, 2; 7, 8; 13, 14)	4	4
Economic Geology (Mining Eng. 5)	3	
Enginery (M. E. 9)	2	
Forest Administration (Forestry 4)		4
Forest Economics (Forestry 5)		4
Forest Finance (Forestry 6)		1
Mycology (Botany 7)	2	
Climatology (Agronomy 10)		1
Theoretical Instruction I, II (Military Science 1, 2)	1	1
Highway Construction (C. E. 8)	3	
Club Work I, II, III, IV (Forestry 11, 12, 13, 14)	1	1
	17	17

Senior Year.

Topographic Surveying (C. E. 5)	4	
Oratorical Themes and Delivery (English 7)	2	
Expression and Style (English 8)		2
Game Breeding and Protection (Zoology 20)	1	
Theoretical Instruction III, IV (Military Science 3, 4)	1	1
Timber Technology (Forestry 8)		4
Lumbering (Forestry 7)	4	
Forest Policy and Protection (Forestry 9)		5
French V, VI; or German V, VI (Mod. Lang. 5, 6; 11, 12)	4	4
Club Work I, II (Forestry 11, 12)	½	½
Club Work V, VI (Forestry 15, 16)	½	½
	17	17

COURSES IN DOMESTIC SCIENCE AND ART.

The purpose of the School of Domestic Science and Art is the discovery and development of woman's potentialities which are frequently neglected in her education and the solution of problems in her life not usually solved by her education.

The school aims to make the woman it graduates a woman of culture and broad interests, able to cope successfully with life's problems, particularly those distinctly her own. With this aim in view it offers courses in English, Mathematics, History and the Languages, as well as courses in the sciences fundamental to the understanding of proper cooking and hygienic living; also courses in Art to train the eye and the hand and to form a basis for constructive art work, such as is appropriate to courses in Basketry, Weaving, House-Construction and Decoration. The student has an opportunity frequently to apply her class work to real problems in decoration for social functions and in the preparation of the refreshments for such entertainments as are given by the College. This work should also prepare a woman to deal successfully with various phases of professional work along the lines of Domestic Science and Art in which there is a growing demand for well trained women.

SECONDARY COURSE IN DOMESTIC SCIENCE AND ART.

First Year.

	Semesters 1st.	Semesters 2nd.
Advanced Grammar I, II (English A, B)	3	3
Classics I, II (English C, D)	2	2
Algebra I, II (Mathematics A, B)	5	5
Ancient History (History A)	3	
Mediaeval and Modern History (History B)		3
Elementary Drawing (Drawing A)	2	
Scientific Drawing I (Drawing C)		2
Plain Cookery I, II (Domestic Science A, B)	2	2
Plain Sewing I, II (Domestic Art, A, B)	2	2
Observational Work I, II (Domestic Science E, F)	1	1
	20	20

Second Year.

	1st.	2nd.
Rhetoric and Composition I, II (English E, F)	3	3
Classics III, IV (English G, H)	2	2
Algebra III, Plane and Solid Geometry (Math. C, D, E)	5	5
Scientific Drawing II, III (Drawing D, E)	2	2
The Plant Cell (Botany A)	2	
Ecology (Botany B)		2
Cookery, Serving, Simple Dietetics I, II (D. S. C, D)	2	2
Sewing, Simple Dresses and Millinery I, II (D. A. C, D)	3	3
Laundering I, II (D. S. G, H)	1	1
	20	20

DEGREE COURSE IN DOMESTIC SCIENCE AND ART.

Freshman Year.

	Semesters,	
	1st.	2nd.
Rhetoric (English 1)	3	
Advanced Rhetoric (English 2)		3
Advanced Classics and Reading I, II (English 3, 4)	2	2
General Chemistry I (Chemistry 2)	4	
Organic Chemistry (Chemistry 7)		4
Biology (Zoology 1)	3	
Modern History (History 1)	3	
U. S. History (History 2)		3
Morphology of Higher Plants (Botany 1)		3
Color Harmony (Art 2)		2
Home and Private Business Management (Bus. Ad. 9), or Simple Dressmaking I (D. A. 1)	2	
Science of Cookery Applied to Practical Work (D. S. 1)	3	
Handwork (D. A. 3)		3
Library Practice	1	
Hygiene (Physical Education 1)		1
	21	21

Sophomore Year.

Exposition and Argumentation (English 10)	3	
The Essay (English 11)		3
French I, II; or German I, II; or Spanish I, II; Mod. Lang. 1, 2; 7, 8; 13, 14; or Foundations of Latin I, II (Latin 1, 2)	4	4
Zoology I, II (Zoology 3, 4)	3	3
Elementary Quantitative Analysis (Chemistry 5)	4	
Chemistry of Foods (Chemistry 12)		4
Stencil Design I, II (Art 3, 4)	2	2
Advanced Cookery I, II (D. S. 2, 3), or Dietetics I, II (D. S. 4, 5)	2	2
Basketry and Weaving I, II (D. A. 4, 5), or Advanced Sewing and Millinery I, II (D. A. 6, 7)	2	2
	20	20

Junior Year.

The Composition of Public Addresses (English 5)..	1	
Argumentative Themes (English 6)................		1
French III, IV; or German III, IV; or Spanish III, IV (Mod. Lang. 3, 4; 9, 10; 15, 16), or Caesar's Gallic War I, II (Latin 3, 4)....................	4	4
Floriculture (Horticulture 29)	3	
Landscape Gardening (Horticulture 30)...........		3
Physiology and Hygiene I, II (Zoology 4, 5).......	3	3
Laundering, I, II (D. S. 6, 7)......................	1	1
Life, Costumed Figure (Art 5)......................	2	
Elective	3	5
	17	17

Senior Year.

Oratorical Themes and Delivery (English 7).......	2	
Expression and Style (English 8)..................		2
American Literature I, II (English 12, 13)..........	2	2
General Psychology (Psychology 1)................	3	
Bacteriology I, II (D. S. 12, 13)..................	3	3
House Sanitation (D. S. 14)......................	2	
Vegetable Gardening and Small Fruit Culture (Hort. 31)		3
Thesis		3
Electives	5	4
	17	17

SECONDARY COURSE IN MECHANIC ARTS.

The Secondary Course in Mechanic Arts is designed to meet the needs of those students who desire industrial training. It is open to those who have completed the eighth grade state examinations, provided they do not come from places where local high schools are offering the same line of work. It is thought that this course will be helpful to those who desire to become workers in wood or metal; to those who wish to teach industrial work in the schools of the state, or elsewhere, as well as to those who intend to take one of the degree courses later. The scope of the work is necessarily more limited than in the degree courses, but special stress is laid upon the industrial features. The tendency of modern education is toward industrial training. Many believe that this training should begin in the common schools. If so, colleges and secondary schools must supply teachers who are proficient in this work.

In this course one-third of the student's time must be given to the distinctively industrial work. Woodwork is required during the first year, but considerable latitude is allowed in the selection of the work of the second year.

The student is brought into actual contact with the work itself by being required to become proficient in the construction of useful articles of wood and metal. The purpose throughout is to combine the training of mind, hand, and eye in a manner that will enable the student to formulate plans rapidly and execute them skilfully.

First Year.

	Semesters.	
	1st.	2nd.
Advanced Grammar I, II (English A, B)	3	3
Classics I, II (English C, D)	2	2
Algebra I, II (Mathematics A, B)	5	5
Ancient History (History A)	3	
Mediaeval and Modern History (History B)		3
Elementary Drawing (Drawing A)	2	
Machine Sketching (Drawing B)		2
Woodwork I, II (Shopwork A, B)	5	5
	20	20

Second Year.

Rhetoric and Composition I, II (English, E, F)	3	3
Classics III, IV (English G, H)	2	2
Algebra III, Plane and Solid Geometry (Math. C, D. E)	5	5
Elementary Physics I, II (Physics A, B)	3	3
Business Methods for Farm and Shop I, II (Bus. Ad. E, F)	2	2
Woodwork III and IV (Shop. C, D), Patternmaking I, II (Shop. E, F), Woodwork VI, VII (Shop. H, I), or Blacksmithing I, II (Shop. J, K)	5	5
	20	20

COURSE IN CIVIL ENGINEERING.

The purpose of this course is to give the student a thorough course of theoretical instruction, accompanied by as much laboratory and field practice as possible. The course includes such basic studies as English, Mathematics, Chemistry, Physics, Drawing, Materials of Engineering, Applied Mechanics and Hydraulics, in addition to the technical work given by this department. During the junior and senior years the student may take either German, French or Spanish, or, for special reasons approved by the head of the department, may elect English or other work instead. In addition to the required studies, the student has opportunity during these two years to elect from the other engineering courses subjects that may be of special interest to him, thus allowing a flexibility not otherwise possible.

Recognizing the value of drawing to the professional engineer as a means of expressing his ideas and of carrying out his plans, and also as a means by which the young graduate may enter some of the most desirable positions, the department lays special emphasis upon this subject. Besides the general course given in Mechanical Engineering and required of students in the course in Civil Engineering, three additional and more technical courses are required in the Civil Engineering course.

One of these, a course in lettering and tinting, is given by the department of Art, the other by this department. Much additional drawing is required in connection with the preparation of plans and working drawings as part of the office work of the higher technical courses.

The work in Field Surveying begins with the freshman year, and continues through the sophomore year, with from six to ten hours of field practice a week. The student serves in subordinate positions at first, and gradually advances as a knowledge of the instruments is acquired until he is placed in charge of field parties and is held responsible for the results accomplished. During the freshman year he is given practice in land surveying and leveling, and in topographic and railroad surveying during the sophomore year. At all times conscientious attention to duty, accuracy and speed will be demanded. Every student keeps full and accurate notes of all work done in the field. These, after being criticised, are transcribed and filed with the instructor.

In the study of Highways, special reference is made to the conditions and needs in Oregon. Due consideration is given to the drainage, and maintenance of dirt and gravel roads. In consequence of the vast area of the State, this class of roads must, of necessity, constitute the greater part of its highways for many years. The courses in theoretical and applied hydraulics cover a period of one and a half years. The various irrigation projects of Oregon offer excellent opportunities for study and work to our students and graduates.

DEGREE COURSE IN CIVIL ENGINEERING.

Freshman Year.

	Semesters,	
	1st.	2nd.
Trigonometry, College Algebra I, II (Mathematics 1, 2, 3)	5	5
Rhetoric (English 1)	3	
Advanced Rhetoric (English 2)		3
Advanced Classics and Reading I (English 3)	2	
Inorganic Chemistry (Chemistry 1)	4	
General Chemistry II (Chemistry 3)		4
Spherical Trigonometry (Mathematics 7)	1	
Mechanical Drawing I (M. E. 1)	3	
Descriptive Geometry (M. E. 2)		3
Plane Surveying I (C. E. 1)		5
Freehand Lettering and Title Design (Drawing 1)	2	
Library Practice	1	
Hygiene (Physical Education 1)		1
	21	21

Sophomore Year.

	1st.	2nd.
Analytic Geometry, Differential and Integral Calculus (Mathematics 4, 5, 6)	5	5
General Physics I, II (Physics 3, 4)	4	4
The Composition of Public Addresses (English 5)	1	
Argumentative Themes (English 6)		1
Exposition and Argumentation (English 9)	3	
The Essay (English 11)		3
Topographic Surveying (C. E. 5)	4	
Railroads I, II (C. E. 6, 7)	1	5
Engineering Drawing I, II (C. E. 3, 4)	3	3
	21	21

Junior Year.

Oratorical Themes and Delivery (English 7)	2	
Expression and Style (English 8)		2
Statics and Dynamics (M. E. 5)	4	
Strength of Materials (M. E. 6)		2
Hydraulics (M. E. 7)		2
Materials of Engineering (M. E. 8)	2	
Engineering Laboratory I, II (M. E. 11, 12)	2	2
Highway Construction (C. E. 8)	3	
Seminar I (C. E. 16)		1
Masonry and Foundations (C. E. 9)		4
Modern Language or Elective	3	3
Theoretical Instruction I, II (Military Science 1, 2)	1	1
	17	17

Senior Year.

Roofs and Bridges I, II (C. E. 10, 11)	4	4
Sanitary Engineering (C. E. 12)	3	
Water Supply Engineering (C. E. 13)	3	
Contracts and Specifications (C. E. 15)		1
Irrigation Engineering (C. E. 14)		4
Seminar II, III (C. E. 17, 18)	1	1
*Electives	5	6
Theoretical Instruction III, IV (Military Science 3, 4)	1	1
	17	17

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*Electives in this course are subject to the approval of the head of this department. No credit will be given toward graduation for less than four semesters' work in a Modern Language.

COURSE IN ELECTRICAL ENGINEERING.

It is a fact well known to engineers that the development of water power in Oregon has only begun, and when all of the streams are generating electrical energy for railways, lighting and manufacturing purposes, there will be several millions of horse power continually in the service of mankind. The value of the output of the large hydro-electric plants then in operation will be enormous. Owing to the depletion of the coal supply with the progress of time, the water wheel must ultimately be substituted for the steam engine in the manufacturing of many products. Processes in the reduction of metals; in the making of abrasives; and in the manufacture of chemicals, including nitric acid and nitrates, for fertilizers, may all be carried on in this State to advantage because of the cheapness of electrical energy obtained from the mountain streams. The field of electro-chemistry is a promising one to those who have tastes leading them in that direction. The installation and operation of power systems will require the employment of many highly trained young men.

Because of these great opportunities much stress is laid upon the studies which will best fit the student for his chosen work. The course is so designed, however, that theory given in the class room is supplemented by its practical application in the shops and laboratories.

The first two years are devoted to the same studies as are required in Mechanical Engineering. At the beginning of the third year the real professional work is taken up and continued to the end of the course. A study is made of the structure and principles involved in the design of the several types of dynamos, and electrical appliances; of the operation of machines and apparatus; of their commercial applications; and of the phenomena incident to the use of high tension alternating currents, the College substation of a long-distance transmission line being available for illustrative and testing purposes.

DEGREE COURSE IN ELECTRICAL ENGINEERING.

Freshman Year.

	Semesters, 1st.	2nd.
Trigonometry, College Algebra I, II (Mathematics 1, 2, 3)	5	5
Rhetoric (English 1)	3	
Advanced Rhetoric (English 2)		3
Advanced Classics and Reading I, II (English 3, 4)	2	2
Inorganic Chemistry (Chemistry 1)	4	
General Chemistry II (Chemistry 3)		4
Mechanical Drawing I (M. E. 1)	3	
Descriptive Geometry (M. E. 2)		3
Woodwork VIII (Shopwork 1)	3	
Patternmaking III (Shopwork 2)		3
Library Practice	1	
Hygiene (Physical Education 1)		1
	21	21

Sophomore Year.

	1st.	2nd.
Analytic Geometry, Differential and Integral Calculus (Mathematics 4, 5, 6)	5	5
General Physics I, II (Physics 3, 4)	4	4
French III, IV; or German III, IV; or Spanish III, IV (Mod. Lang. 3, 4; 9, 10; 15, 16)	4	4
Mechanical Drawing II (M. E. 3)	4	
Mechanism (M. E. 4)		4
Blacksmithing IV, V (Shopwork 5, 6)	3	3
	20	20

Junior Year.

The Composition of Public Addresses (English 5)	1	
Argumentative Themes (English 6)		1
French III, IV; or German III, IV; or Spanish III, IV (Mod. Lang. 3, 4; 9, 10; 15, 16)	4	4
Dynamo Electric Machinery (Electrical Engineering 1)	3	
Alternating Currents (Electrical Engineering 2)		3
Electric and Magnetic Measurements (E. E. 4)	2	
Dynamo Laboratory (E. E. 5)		2
Steam Machinery (M. E. 10)		2
Machine Shop III (Shopwork 11)	2	
Theoretical Instruction I, II (Military Science 1, 2)	1	1
Statics and Dynamics (M. E. 5)	4	
Strength of Materials (M. E. 6)		2
Hydraulics (M. E. 7)		2
	17	17

Senior Year.

Oratorical Themes and Delivery (English 7)	2	
Expression and Style (English 8)		2
Advanced Alternating Currents (E. E. 3)	3	
Power Plants (E. E. 10)		3
Electrical Distribution (E. E. 8)	2	
Electrical Engineering Laboratory I, II (E. E. 6, 7)	2	2
Electrical Design (E. E. 9)	3	
Power Plant Design (E. E. 11)		3
Thesis (E. E. 16)	1	1
Mechanical Engineering Laboratory (M. E. 12)		2
Thermodynamics (M. E. 15)	3	
Manufacturing (Political Economy 8)		3
Theoretical Instruction III, IV (Military Science 3, 4)	1	1
	17	17

COURSE IN MECHANICAL ENGINEERING.

The course in Mechanical Engineering has for its purpose the preparation of young men for positions of usefulness and responsibility in the industrial life of the country.

The Pacific Northwest is just now entering upon a period of rapid progress in the building of railroads, the development of water power, the marketing of forest products, and the upbuilding of manufactories; all of which require men conversant with the general principles of engineering. It is the purpose of all engineering courses to contribute to this general advancement by turning out graduates equipped with the necessary knowledge and skill to make them active factors in this great work.

It is the general plan of the course in Mechanical Engineering to lay a broad foundation in English, Mathematics, Chemistry, and Physics, accompanied by Drawing and Shopwork, during the first two years of the course. The work of the last two years is more technical and professional in its nature, consisting in a study of the principles involved in the development of power by steam engines, water wheels, gas and gasoline engines, and steam turbines. It also involves a critical study of the design of machines and materials entering into their construction, as well as tests to determine their efficiency.

Instruction is given by means of lectures, recitations, and laboratory exercises. The scientific principles involved in machines and mechanical movements are taught in the class room as well as the application of mathematics to the solution of problems in mechanical engineering. In the shops, the student learns the use of tools and the value of different methods of doing work from the standpoint of economical construction. In the drafting room, he learns to make working drawings and blue-prints of machines, and to formulate designs of his own.

With these advantages to aid him, the ambitious student should be able to take and maintain a position in the general industrial and engineering development which is the leading and characteristic feature of the age in which we live.

DEGREE COURSE IN MECHANICAL ENGINEERING.

Freshman Year.

	Semesters, 1st.	2nd.
Trigonometry, College Algebra I, II (Mathematics 1, 2, 3)	5	5
Rhetoric (English 1)	3	
Advanced Rhetoric (English 2)		3
Advanced Classics and Reading I, II (English 3, 4)	2	2
Inorganic Chemistry (Chemistry 1)	4	
General Chemistry II (Chemistry 3)		4
Mechanical Drawing I (M. E. 1)	3	
Descriptive Geometry (M. E. 2)		3
Woodwork VIII (Shopwork 1)	3	
Patternmaking III (Shopwork 2)		3
Hygiene (Physical Education 1)		1
Library Practice	1	
	21	21

Sophomore Year.

Analytic Geometry, Differential and Integral Calculus (Mathematics 4, 5, 6)	5	5
General Physics I, II (Physics 3, 4)	4	4
French I, II; or German I, II; or Spanish I, II (Mod. Lang. 1, 2; 7, 8; 13, 14)	4	4
Mechanical Drawing II (M. E. 3)	4	
Blacksmithing IV, V (Shopwork 5, 6)	3	3
Mechanism (M. E. 4)		4
	20	20

Junior Year.

The Composition of Public Addresses (English 5)	1	
Argumentative Themes (English 6)		1
French III, IV; or German III, IV; or Spanish III, IV (Mod. Lang. 3, 4; 9, 10; 15, 16)	4	4
Statics and Dynamics (M. E. 5)	4	
Strength of Materials (M. E. 6)		2
Hydraulics (M. E. 7)		2
Materials of Engineering (M. E. 8)	2	
Engineering Laboratory I, II (M. E. 11, 12)	2	2
Machine Shop I, II (Shopwork 9, 10)	3	3
Steam Machinery (M. E. 10)		2
Theoretical Instruction I, II (Military Science 1, 2)	1	1
	17	17

Senior Year.

Expression and Style (English 8)		2
Oratorical Themes and Delivery (English 7)	2	
Machine Design I, II (M. E. 13, 14)	4	4
Thermodynamics (M. E. 15)	3	
Hydraulic Motors (M. E. 18)	2	
Internal Combustion Motors (M. E. 16)		2
Steam Turbines (M. E. 17)		2
Thesis	1	2
Elective	4	4
Theoretical Instruction III, IV (Military Science 3, 4)	1	1
	17	17

COURSE IN MINING ENGINEERING.

The course in Mining Engineering is planned to give the student a thorough knowledge of the principles which form the groundwork of the sciences of Mining and Metallurgy.

It is the aim of the Mining Engineering Department in arranging the courses to give the student first a drill in the fundamental studies common to all engineering courses, such as Mathematics, English, Physics, Drawing, Mechanics, etc. In the latter part of his course he applies the principles of these fundamental studies to the more distinctive mining subjects, such as Mineralogy, Geology, Assaying, Mining, Mine Surveying, Metallurgy and Ore Dressing.

The methods of instruction include the ordinary lecture, text book and recitation work, supplemented as far as possible by problems and illustrations drawn from actual mining and metallurgical practice. The successful mining engineer deals largely with concrete problems, hence the laboratory method of instruction is given a very important place in the training of the student. A portion of the last two summers is devoted to summer school work in Mine Surveying, and Mining and Metallurgical inspection. The students are required to keep systematic notes on the summer work, and to turn in to the professor in charge a complete report. On these trips of inspection, visits are made to plants which exemplify, often on a large scale, the application of principles taught in the class room to problems of commercial operation. This practical method vivifies the teaching and gives the student a clear comprehension and firm grasp of the subject.

Students who pursue the Mining Engineering course to completion are expected to be able to undertake any of the vocations of the young mining engineer, such as Assaying, Mine Surveying, Scientific Prospecting; and after a short apprenticeship they will be able to assume the full management of important mining and metallurgical enterprises.

DEGREE COURSE IN MINING ENGINEERING.

Freshman Year.

	Semesters, 1st.	2nd.
Trigonometry, College Algebra I, II (Mathematics 1, 2, 3)	5	5
Rhetoric (English 1)	3	
Advanced Rhetoric (English 2)		3
Advanced Classics and Reading I (English 3)	2	
Inorganic Chemistry (Chemistry 1)	4	
General Chemistry II (Chemistry 3)		4
Mechanical Drawing I (M. E. 1)	3	
Descriptive Geometry (M. E. 2)		3
Plane Surveying I (C. E. 1)		5
Woodwork IX (Shopwork 3)	3	
Library Practice	1	
Hygiene (Physical Education 1)		1
	21	21

Sophomore Year.

	1st.	2nd.
Analytic Geometry, Differential and Integral Calculus (Mathematics 4, 5, 6)	5	5
General Physics I, II (Physics 3, 4)	4	4
Qualitative Analysis (Chemistry 4)	4	
Quantitative Analysis (Chemistry 6)		3
Advanced Classics and Reading II (English 4)		2
Crystallography and Blowpipe Analysis (Mining Eng. 1)	4	
Determinative Mineralogy (Mining Eng. 2)		4
General Geology (Mining Eng. 3)		3
Freehand Lettering and Title Design (Drawing 1)	2	
Blacksmithing VII (Shopwork 8)	2	
	21	21

Junior Year.

Statics and Dynamics (M. E. 5)	4	
Hydraulics (M. E. 7)		2
Strength of Materials (M. E. 6)		2
Mine Surveying (Mining Eng. 8)	3	
Fire Assaying (Mining Eng. 12)		4
The Composition of Public Addresses (English 5)	1	
Argumentative Themes (English 6)		1
Metallurgy of Iron and Steel (Mining Eng. 14)		3
Excavating and Tunneling (Mining Eng. 7)	3	
Electives	5	4
Theoretical Instruction I, II (Military Science 1, 2)	1	1
	17	17

Senior Year.

Lithology (Mining Eng. 6)	2	
Economic Geology (Mining Eng. 5)	3	
Mining (Mining Engineering 9)		3
Seminar I, II (Mining Eng. 16, 17)	1	1
Oratorical Themes and Delivery (English 7)	2	
Expression and Style (English 8)		2
Ore Dressing (Mining Eng. 10)	3	
Engineering Laboratory I, II (M. E. 11, 12)	2	2
Contracts and Specifications (Civil Eng. 15)		1
Mining Law (Mining Eng. 11)		1
Thesis		3
Electives	3	3
Theoretical Instruction III, IV (Military Science)	1	1
	17	17

NOTE.—Electives in this course are subject to the approval of the head of the department. No credits in Modern Languages will be given toward graduation for less than four semesters' work.

COURSE IN COMMERCE.

The most progressive colleges and universities are now offering courses in commerce and finance. These courses have rapidly gained favor in response to an almost universal demand for thoroughly trained men to assume leadership in the commerce of the world.

The School of Commerce has been established in harmony with this modern tendency in education. Its aim is to do for the business man what the trade school does for the mechanic, what the school of engineering does for the engineer, or what the school of law does for the lawyer. It does not claim to turn out finished business men or "captains of industry," but men who shall seek, and be prepared to assume, the responsibilities of commercial and financial leadership after a comparatively short apprenticeship and practical experience.

A thorough business course, therefore, covers more than a study of bookkeeping, commercial law, and penmanship, though all are subjects of the greatest importance. Thorough courses in English, economics, modern languages, mathematics, natural sciences, etc., are equally important. In fact, all are in a sense only means to one end: to facilitate the profitable exchange of commodities in the form of property or service. Hence the advantage of incorporating business courses into the curricula of the higher institutions of learning where courses in the basic subjects are already given.

The professional courses offered by the School of Commerce have been arranged and selected with special reference to two classes of students: the prospective business manager, and the office employee. The latter studies chiefly the methods and arts of commerce, while the former pursues his course from a broader and more scientific aspect. Two distinct courses are offered; a two-year course leading to a certificate of graduation, and a four-year course leading to the degree of Bachelor of Science. The Theory and Practice of Accounts, Stenography, and Commercial Law, are the principal technical subjects in the two-year course; while Economics, Trade and Transportation, Banking and Finance, Political Science, International Relations, and Public Accounting and Administration, are the professional subjects in the degree course. Special stress is laid on English in both courses, and the cultural development of the student is duly emphasized.

But while the School of Commerce emphasizes work preparatory to commercial pursuits, the fact that there is a business side to every vocation has been recognized by providing, in the second year of the Secondary courses, a two-hour course in Business Methods, especially adapted for the farmer, mechanic, housekeeper, professional man, etc. The exceptional laboratory and library facilities of the department are enjoyed by all students alike.

The Commercial course is especially attractive as a preparation for law; for teachers of commercial subjects; for public accountants, for administrative secretaries, and as a preparation for the Civil Service.

SECONDARY COURSE IN COMMERCE.

First Year.

	Semesters, 1st.	2nd.
Advanced Grammar I, II (English A, B)	3	3
Classics I, II (English C, D)	2	2
Algebra, I, II (Mathematics A, B)	5	5
Ancient History (History A)	3	
Mediaeval and Modern History (History B)		3
Business Forms and Bookkeeping, I, II (Bus. Adm. A, B)	5	5
Elementary Drawing (Drawing A)	2	
Scientific Drawing I (Drawing C)		2
	20	20

Second Year.

Rhetoric and Composition I, II (English E, F)	3	3
Classics III, IV (English G, H)	2	2
Algebra III, Plane and Solid Geometry (Math. C. D, E)	5	5
Ecology (Botany B)		2
Civil Government and Administration (Political Sci. A)	2	
Elementary Commercial Law (Political Science B)		3
Business English (English 14)	3	
Practical Bookkeeping I, II (Bus. Adm. C, D) or Theory and Practice of Stenography I, II (Stenography A, B)	5	5
	20	20

DEGREE COURSE IN COMMERCE.

Freshman Year.

Rhetoric (English 1)	3	
Advanced Rhetoric (English 2)		3
Advanced Classics and Reading, I, II (English 3, 4)	2	2
Commercial Arithmetic (Mathematics 8)	3	
Trigonometry (Mathematics 1)		3
Inorganic Chemistry (Chemistry 1)	4	
General Chemistry II (Chemistry 3)		4
United States History (History 2)		3
Business English (English 14)	3	
Office Facilities and Business Practice (Bus. Adm. 1, 2)	5	5
Library Practice	1	
Hygiene (Physical Education 1)		1
	21	21

Sophomore Year.

French I, II; or German I, II; or Spanish I, II (Mod. Lang. 1, 2; 7, 8; 13, 14) or Foundations of Latin I, II (Latin 1, 2)	4	4
Zoology I, II (Zoology 2, 3)	3	3
General Physics, I, II (Physics 3 and 4)	4	4
Elements of Economics (Political Economy 1)	3	
Commercial Geography (Political Economy 2)		3
Accounting, Auditing, and Business Management I, II (Bus. Adm. 3, 4) or Theory and Practice of Stenography I, II (Stenography 1, 2)	6	6
	20	20

Junior Year.

French III, IV; or German III, IV; or Spanish III, IV (Mod. Lang. 3, 4; 9, 10; 15, 16); or Caesar's Gallic War I, II (Latin 3, 4)	4	4
The Composition of Public Addresses (English 5)	1	
Argumentative Themes (English 6)		1
Money and Banking (Political Economy 3)	3	
Corporation and Public Finance (Political Economy 4)		3
Business Organizations and Management (Bus. Ad. 5); Theory and Practice of Advertising (Bus. Adm. 6), or Advanced Stenography I, II (Stenography 3, 4)	4	4
Theoretical Instruction I, II (Military Science 1, 2)	1	1
Elective	4	4
	17	17

Senior Year.

Oratorical Themes and Delivery (English 7)	2	
Expression and Style (English 8)		2
Commercial Law, I, II (Political Science 1, 2)	3	3
Theoretical Instruction III, IV (Military Science 3, 4)	1	1
Advanced Economics (Political Economy 5)	3	
History of Commerce (Political Economy 6)		3
Elective	8	8
	17	17

COURSE IN PHARMACY.

It is now so generally recognized and so universally admitted as to need but passing comment, that in order to attain to any degree of success in a scientific profession it is necessary to be thoroughly trained in the sciences upon which the profession is based.

With reference to the profession of pharmacy, it may truly be said that it is one of applied sciences, since the pharmacist has constant use for a knowledge of the sciences of chemistry, of physics and botany. It is, therefore, of utmost importance to the individual who has decided to enter upon a pharmaceutical career, that he begin properly in the matter of an education. The institution in which the study of the natural sciences is prominently featured is, without doubt, the one best qualified to afford him the training suited to his particular needs. In this connection, attention is directed to colleges of the land-grant, or agricultural type. Financed by state and federal governments, the material welfare of institutions of this class is assured. With unusual facilities in the way of laboratories and equipment, and with an instructional force selected especially for the purpose, they are prepared to offer exceptional advantages for mental and manual training in those professions having for their foundation a knowledge of the sciences.

In recognition of the fitness of conditions and of an apparent need for such instruction, the Oregon Agricultural College, in

1898, added to its curricula a Course in Pharmacy, the purpose of which is to afford the young men and women of the state an opportunity of obtaining a thorough training in the theoretical and practical features of this profession.

The course comprehends instruction in class and lecture-room, in extensive practice in the laboratory, and excursions afield in botany. The value of laboratory practice is fully appreciated; it is in this connection that facts mentioned in text book and lecture are brought to the student's notice in a way that the importance is emphasized, the significance demonstrated, and the fact itself fixed in the mind. In the pharmaceutical laboratories the student becomes experienced in the manufacture of medicinal preparations and in filling prescriptions. In the laboratories of chemistry, of botany, of bacteriology, of physics, and of biology he gains valuable experience in connection with each of these related sciences. It is expected, and not without reason, that owing to the nature and extent of the instruction given, graduates of this course will be qualified to assume positions of trust and responsibility in the professional world. Not only is this training of benefit to the pharmacist, but it forms an ideal pre-medical course.

The enactment of the Pure Food and Drug law of 1906 has opened a new and attractive field for those who are proficient in chemical and pharmaceutical knowledge. Laboratories for the examination of food and drug samples are being established in the various large cities of the country by the federal government. Positions in these laboratories are, in many instances, held by graduates of pharmacy.

Two courses are offered; one of four years, leading to the degree of Bachelor of Science in Pharmacy. The other is a short course, of two years, for the completion of which a certificate is given.

A clause in the revised pharmacy law of this state, enacted by the Legislature, session of 1907, stipulates that a candidate for registration as a licentiate of pharmacy, before being eligible for examination by the State Board of Pharmacy, must have had four years of practical experience in a store where prescriptions and medicines are dispensed. Three years of such experience are required of the candidate for registered assistant pharmacist. The Oregon Board of Pharmacy, by special resolution, has granted students who complete the four years' Course in Pharmacy at this institution, the privilege of taking the senior examination as given by the Board, and to those who complete the two-year course, the privilege of the junior examination, the regulation with reference to store experience being waived.

The Laue Prize. Mr. John M. A. Laue, prominent in business and professional circles of Portland, prompted by the desire to encourage students to strive for a high degree of attainment and efficiency, has very generously established an annual prize of $50, to be divided between the two students in the Pharmacy Course of this institution who shall make the best showing in their work. The prize is so apportioned that $35 is awarded to the one in the four-year course who shall have the highest standing, and $15 to the one of like standing in the two-year course.

DEGREE COURSE IN PHARMACY.

Freshman Year.

	Semester, 1st.	Semester, 2nd.
Rhetoric (English 1)	3	
Advanced Rhetoric (English 2)		3
Advanced Classics and Reading, I, II (English 3, 4)	2	2
Trigonometry (Mathematics 1)	3	
Special Morphology (Botany 2)		3
Typewriting III (Stenography 7)		3
Biology (Zoology 1)	3	
Foundation of Latin I, II (Latin 1, 2)	4	4
Inorganic Chemistry (Chemistry 1)	4	
General Chemistry II (Chemistry 3)		4
Hygiene (Physical Education 1)		1
Library Practice	1	
	20	20

Sophomore Year.

French I, II; or German I, II; or Spanish I, II (Mod. Lang. 1, 2; 7, 8; 13, 14)	4	4
Qualitative Analysis (Chemistry 4)	4	
Organic Chemistry (Chemistry 7)		4
General Physics I, II (Physics 3, 4)	4	4
Histology (Botony 5)	3	
Commercial Geography (Political Economy 2)		3
Office Facilities and Business Practice I, II (Bus. Adm. 1, 2)	5	5
	20	20

Junior Year.

French III, IV; or German III, IV; or Spanish III, IV (Mod. Lang. 3, 4; 9, 10; 15, 16)	4	4
The Composition of Public Addresses (English 5)	1	
Argumentative Themes (English 6)		1
Elementary Quantitative Analysis (Chemistry 5)	2	
Pharmaceutical Analysis (Chemistry 13)		2
Zoology I, II (Zoology 2, 3)	3	3
General Pharmacy (Pharmacy 1)	2	
Nomenclature (Pharmacy 2)	1	
Therapeutics and Doses (Pharmacy 5)	2	
General Pharmacy (Pharmacy 6)		4
Pharmacognosy I, II (Pharmacy 3, 4)	1	2
Theoretical Instruction I, II (Military Science 1, 2)	1	1
	17	17

Senior Year.

Oratorical Themes and Delivery (English 7)	2	
Expression and Style (English 8)		2
General Bacteriology (Bacteriology 4)	3	
Practical Bacteriology (Bacteriology 5)		3
Physiology and Hygiene I, II (Zoology 4, 5)	3	3
General Pharmacy (Pharmacy 7)	2	
Materia Medica and Toxicology I, II (Pharmacy 8, 9)	3	3
Prescription Practice I, II (Pharmacy 10, 11)	3	5
Theoretical Instruction III, IV (Military Science 3, 4)	1	1
	17	17

DEPARTMENTS OF INSTRUCTION.

AGRONOMY.

Professor Scudder.
Mr. Hyslop.

Agronomy is the science of the fields and the crops of the fields. Instruction in this science is offered by the Department of Agronomy in the following subjects:

(a) Soils; their origin, structure, fertility, cultivation, and improvement.

(b) Field Crops; their history, growth, culture, improvement and value.

(c) Farm Mechanics; the structures, machinery, drainage, and irrigation of the farm.

(d) Farm Management; the methods, business principles, history, and economics of farming.

In every subject, instruction is accomplished equally through class room, laboratory and field work; theory is checked by practice. For the latter methods of instruction the finely equipped laboratories of this department the various soil conditions, numerous experimental crops, and extensive structures of the Experiment Station farm, offer excellent facilities. The large and newly equipped laboratories for the courses in Field Crops and the courses in Soils in the new Agronomy building and for Farm Mechanics in the new barn, are not excelled by those of any institution in the country.

The Secondary courses in Agronomy deal only with the practical application of the underlying principles of agriculture to specific conditions—aiming to give the less well prepared student as much information as possible in a short time concerning those practices most vital to successful farming—to send him back to the farm better prepared to cope with its problems.

These courses serve also to prepare the student for collegiate Agriculture.

The object of the collegiate courses in this department is to give the student such mastery of all the subjects relating to the soil, field crops, farm mechanics, or farm management as will help prepare him for the highest type of practical farming or for a successful career in professional agriculture such as is found in the U. S. Department of Agriculture, or in the State Experiment Stations and Agricultural Colleges. So far this department has had more calls for capable agronomists than it has been able to fill, positions paying all the way from $75 to $150 per month.

Agronomy 1, 2, and 3, are prescribed for all collegiate agricultural students. The succeeding courses are the majors and minors offered to the upper classmen in Agriculture who elect Agronomy as their specialty. Majors and minors are then determined upon by conference between the student and the head of the department. Liberal electives in other departments are permitted where advisable.

A. **Soils.** A brief history of the origin of soils; the fertility of soils; the most valuable chemical constituents; their exhaustion and replenishment; the most important physical factors; their deterioration or improvement. The physical components; their relative value and amounts in soil mixtures. Practice in judging the chief soil types of Oregon. The effects upon soils of tillage, manuring, crop rotation, drainage and irrigation.

The Secondary course in Agriculture; first year; first semester; one credit; one laboratory period.

B. **Crops.** A brief consideration of the adaptability, relative value, and best methods of growing the chief cereal, grass, legume and succulent crops of Oregon for grain, pasture, meadow, soiling, silage or seed purposes. Investigation of the sources of crop seed and the importance of seed purity and germinating power, with methods of testing same. Eradication of the most common weed, insect, and fungous enemies of the field crops.

The Secondary course in Agriculture; first year; second semester; two credits; one lecture; one laboratory period.

C. **Farm Mechanics.** A study of some of the mechanical principles involved in farm operations and their application in labor saving devices for farm work. The structure and uses of the best types of farm machines. The designing and construction of barns, silos, hog houses, sheep sheds. Fencing problems; the division of fields; the location of farm buildings and lanes.

The Secondary course in Agriculture; second year; second semester; two credits; one lecture; one laboratory period.

1. **Basic Agronomy.** This course is, of necessity, elementary and general in its nature—an introduction to agriculture—seeking to interest the new student in farm life through first knowledge of the fields, the crops, the mechanics of the farm; or in agriculture as a science, through the wide range for scientific study and investigation it offers, the possibilities in the fields still unexplored; or to interest him in agriculture as a business, through its profits as a practice, and its opportunities as a profession. During the semester, instruction is given in the elementary facts concerning the origin and formation of soils; soil moisture, heat and air; common soil processes, physical and chemical; plant foods and soil fertility; tillage, crop rotation and manuring; important soil bacterial action; the benefits derived from drainage and irrigation; common farm machines, their use and care. The course will close with a brief survey of the agriculture of the state. Instruction will be given through lectures and notes, text and recitation, laboratory, and field observations.

The course in Agriculture; freshman year; first semester; three credits; two lectures; one laboratory period.

2. **Crop Production.** The study of the chief field-crop seeds of Oregon; wheat, barley, oats, corn, vetch, clover, alfalfa, grasses, etc., their vitality, germination, preservation, growth, and reproduction; preliminary judging; seed bed and seeding; climate and soil; culture and rotation; enemies, their prevention and eradication; harvesting, marketing, and profits; distribution and value to the state; methods of crop improvement. Class room, laboratory, and field work.

The course in Agriculture; freshman year; second semester; two credits; one lecture; one laboratory period.

3. **Drainage and Irrigation.** The history of drainage and of irrigation; road, field, and sanitary drainage on the farm; the different systems of drainage and of irrigation; methods of locating, installing, operating, and maintaining drainage and irrigation conduits; cost, efficiency, and profits; the effect on crops and soils; laws governing. Lectures, notes, readings, and field work.

The course in Agriculture; sophomore year; second semester; three credits; two lectures; one laboratory period.

4. **Soil Physics.** Advanced study of the geology of soils—origin, formation, composition, and classification. Soil moisture and fertility, and their conservation. The various physical processes of the soil—surface tension, osmosis, capillarity, diffusion, etc. The effects of the various crops and the different methods of culture upon the texture, aeration, temperature, moisture and plant food supply of the soil, and the resulting alteration in crop producing power. The influence of washing, drainage, and irrigation upon soils.

Elective; junior year; first semester; three credits; three lectures.

5. **Soil Physics Laboratory.** Work in the laboratory will consist of the determination and comparison of such physical properties in the various soil types as, specific gravity, water retention, capillarity, organic content, etc.; the effect of mulches, rotations, and cropping; soil sampling and judging; the mechanical analysis of soils.

Elective; junior year; two credits; two laboratory periods.

NOTE.—Animal Husbandry and Dairy Husbandry students will be permitted, where it is necessary, to take either the lecture or laboratory course in Soil Physics, separately.

6. **Cereal Crops.** A study of grains with special reference to those of Oregon and the varying conditions of soil and climate under which they are grown; the culture and rotation best adapted to each; the various methods of harvesting and storage; the judging of grain; grading for market; markets and uses of each crop; improvement of crop seed; plant breeding.

Elective; junior year; first semester; five credits; three lectures; two laboratory periods.

7. **Forage Crops.** A less technical study of the legumes, grasses, and succulent crops, the course being specially adapted to the needs of the students in Animal and Dairy Husbandry. The adaptability and value of each of the forage plants as pasture, hay, soiling, or silage crops, together with the practical methods of growing each and the planning of rotations that will maintain fertility, will be fully discussed.

Elective; junior year; second semester; two credits; two lectures.

8. **Farm Mechanics.** Field machinery; farm buildings; fences, and roads. The construction and use of all classes of modern farm machinery; tillage and seeding implements; harvesting, threshing, grinding, cutting, and pumping machinery; farm engines of all kinds. The design and construction of farm buildings, barns, granaries, and silos; their arrangement and cost. The various kinds of fencing; cost, construction, and quality. Methods of road and walk construction, and cost of same.

Elective; junior year; second semester; three credits; three lectures.

9. **Farm Mechanics Laboratory.** The examination, setting up, testing, and field operation of all the more complicated farm machines such as harvesting and power machines, and engines. Each student will be made capable of locating trouble in a complicated machine or of running an engine properly. Practical work in concrete construction will also be given and the designing, plans and specifications, and estimates of cost of various farm buildings, such as will fit home conditions, will be required.

Elective; junior year; two credits; two laboratory periods.

NOTE.—Animal Husbandry, Dairy Husbandry, and Horticultural students will be permitted, where it is necessary, to take either the lecture or laboratory course in Farm Mechanics, separately.

10. **Climatology.** Practical meteorology; observing and recording local weather; a study of the climate of Oregon and the effect of climate upon agriculture; class room and laboratory work.

Elective; junior year; second semester; one credit; one laboratory period.

11. **Soil Fertility.** The effect of the various crops upon the fertility of the soil. The maintenance or improvement of fertility by the use of fertilizers and manures. The composition and value of the different fertilizers and manures. The effect of various rotations upon fertility. The fertility of the different types of Oregon soils; their plant food requirements and comparative values; methods of improvement of each. The effects of different systems of farming. Analysis, field plot, wire basket, and pot culture investigations.

Elective: senior year; first semester; five credits; three lectures; two laboratory periods.

12. **Agrostology.** A study of the grasses, legumes, and other forage crops. Methods of seeding for meadow, pasture, and soiling crops; maintenance of meadows and pastures; harvesting, curing, storing, baling, and using the various meadow crops; grazing, siloing, and soiling. The botanical structure and identification of the different forage plants; their adaptability to different conditions of soil and climate. Examination of commercial seed for viability and purity. The identification of weed seed. The production of forage crop seed.

Elective; senior year; first semester; five credits; three lectures; two laboratory periods.

13. **Farm Management.** A study of the various systems of extensive, intensive, and mixed farming, and the conditions under which each prospers or fails; methods of successful farmers; the application of business methods to farm operations; farm accounts; farm labor; economic management of fields, stock, structures, crops, and machines; markets and marketing; relation of farming to other industries.

Elective; senior year; second semester; five credits; five lectures.

14. **Advanced Work.** This course embraces all advanced work of any kind in any branch of Agronomy that the individual student wishes and is fitted to pursue further than is possible in the courses offered above. It is especially designed to meet the needs of senior and graduate students in Agronomy,

as preparation for positions as farm managers, or machine experts, or for the government, agricultural college, or experiment station service. The subjects which this course offers for advanced study and investigations are:

a. Soils; mechanical analysis, soil surveying, soil fertility problems, soil bacteriology.

The advanced student specializing in soils may study the various soil types of Oregon through mechanical analysis, and other physical tests; may undertake field work in soil surveying and mapping; or, through wire basket, pot culture, and field plot tests, may determine the effects of various systems of cropping, or fertilizing, or of soil bacteria, upon soil fertility.

b. Crop Production; special crops, field experimentation, plant breeding.

In this subject a complete study may be made of some special crop in which the student is interested or on which information is lacking. Methods of field experimentation may be compared and carried out; or plant breeding theories and their practical use in commercial seed production may be made the subject of investigation.

c. Farm Mechanics; farm power machinery, harvesting machinery, rural architecture, concrete work, road and fence construction, drainage engineering.

For the student with inclinations towards mechanics or engineering, a wide field is offered in advance work in testing the efficiency and cost of running various types of farm power machines and engines; or of becoming an expert on harvesting machinery; or he may specialize in the designing of a complete series of farm buildings; or do a half year's practical work in drainage engineering, working out a system for some given area.

d. Farm Management; farming systems, irrigation farming, dry land farming, rural economics.

In this branch of Agronomy there is a rapidly growing demand for men of special knowledge concerning the methods of crop production under the two extremes of soil moisture conditions found in irrigation farming and dry land farming. Special attention is given in these two courses to their application to Eastern Oregon conditions.

Elective; senior or graduate year; first or second semester, or both; one to five credits.

Minor electives in other departments: Agricultural Chemistry, five credits; Animal Husbandry, five credits; Bacteriology, three credits; Botany, three credits; Engineering, three credits; Entomology, three credits; Geology, three credits.

ANIMAL HUSBANDRY.

Professor Withycombe.
Mr. Potter.

The object of the course in Animal Husbandry is to fit the student for the actual rearing of live stock on the farm so that he may raise the highest grade of stock in the most economical manner. The student is thoroughly grounded in the underlying principles so that he may successfully continue his study after he leaves school, but the practical details are thoroughly discussed and an especial effort is made to keep the student in close touch with the financial phases of the live stock industry. Students who make this work their specialty are not expected to devote their entire time to live stock but are to familiarize themselves with the production of the common farm crops, maintenance of the fertility of the soil, and the handling of farm machinery and like topics so that when he graduates, he will be equipped for practical farm work.

Scientists and practical farmers are agreed that the fertility of the soil cannot be maintained economically, if at all, without live stock. The rearing of live stock requires more skill and knowledge than grain or hay farming, and while the profits are much larger when the business is properly handled, there is also more danger of a loss due to improper management or ignorance; hence the necessity of a thorough training before embarking in this line of work.

The equipment for this work consists of class rooms, laboratory, and farm live stock. It is expected that before the end of 1909 the equipment of live stock will be greatly increased so that much more and better work along the lines of judging may be done than in the past.

A. **Stock Judging.** I. A study of animal form by score practice and comparative judging. The student is given an understanding of various points to be considered in judging cattle, sheep, swine, and horses. The work consists almost exclusively of actual practice with the animals at the barns.

The Secondary course in Agriculture; first year; first semester; two laboratory periods; two credits.

B. **Veterinary Science.** A study of the treatment and prevention of the common diseases of farm live stock. Special attention is given to sanitation and the prevention of diseases.

The Secondary course in Agriculture and Forestry; second year; first semester; one lecture period; one credit.

C. **Practical Stock Feeding.** A study of the elementary principles of stock feeding. The various feed stuffs obtainable in Oregon are discussed and compared as to their value for the different kinds of stock. Some time is devoted to the different methods of preparing the feed and the various systems of feeding.

The Secondary course in Agriculture; second year; second semester; two lecture periods; two credits.

1. **Stock Judging.** II. The various types of farm animals are studied by the score card method and by comparative judging. Practically the entire time is devoted to studying the animals at the barns. The student is made familiar with the desirable types of cattle, sheep, swine, and horses.

Freshman year; second semester; two laboratory periods; two credits.

2. **Live Stock Management.** A careful study of the practical details of the care and management of live stock; stabling; grooming; sanitation; practical feeding, and kindred details of live stock farming.

Sophomore year; second semester; two lecture periods; one laboratory period; three credits.

3. **Breeds of Stock.** I. The study of the history of the various breeds of cattle and sheep, their origin and characteristics. Each breed is taken up and studied separately from its early

history. The environment under which they were produced, the original stock, and the men who were instrumental in establishing the breed are given careful consideration, as well as the present states of the breed and the work of present day breeders. The leading families or strains and the most prominent animals are discussed in detail. The lecture work is accompanied by comparative judging in which especial attention is given to breed type and to the differences in conformation of the various breeds.

Elective; junior year; first semester; three recitation periods; one laboratory period; four credits. Not given in 1909-10.

4. **Breeds of Stock.** II. The study of the breeds of horses, swine and dairy cattle. A continuation of A. H. 3.

Elective; junior year; second semester; three recitation periods; one laboratory period; four credits. Not given in 1909-10.

5. **Marketing.** The study of the various problems of marketing live stock; preparation of stock for market; shipping; market grades and classes; market terms and reports; together with a detailed study of the leading markets open to farmers of Oregon.

Elective; junior year; first semester; two recitations; two credits.

6. **Range Management.** The study of range conditions in Oregon and the details of live stock management peculiar to the range.

Junior year; second semester; two recitations; two credits.

7. **Principles of Breeding.** The study of the principles of breeding as related to the development of our domestic animals. Among the topics discussed are variation, transmission of variations and modifications, fecundity, in-an-in breeding, crossing, and like topics. Some time is devoted to the study of pedigrees and to the methods of registration employed by the various breeds associations.

Prerequisite, at least one semester of zoology.

Elective; senior year; first semester; four recitations; four credits.

8. **Principles of Stock Feeding.** The study of the chemical and physiological principles of animal nutrition including digestion, assimilation, metabolism and also the composition of

eed stuffs and the function of the various classes of compounds ound in feed stuffs in the animal body. Especial attention is evoted to the study of nutritive ratios, feeding standards, ompounding rations, and the general significance of the chemcal composition of the feeds.

Prerequisite, Chemistry 8 and 10.

Elective; senior year; first semester; four recitations; four redits.

9. **Beef Production.** A study of the feeds and methods of eeding adapted to the production of beef. Especial attenion is given to the results obtained in the tests conducted by he various experiment stations.

Prerequisite, A. H. 8.

Elective; senior year; **first fifth** of the second semester; five lecture periods; one credit.

10. **Mutton and Wool Production.** A study of feeding for the production of mutton and wool as in A. H. 9.

Prerequisite, A. H. 8.

Elective; senior year; **second fifth** of the second semester; five lecture periods; one credit.

11. **Pork Production.** A study of the methods of feeding for pork production as in A. H. 9.

Prerequisite, A. H. 8.

Elective; senior year; **third fifth** of the second semester; five lecture periods; one credit.

12. **Milk Production.** A study of feeding for the production of milk, as in A. H. 9.

Prerequisite, A. H. 8.

Elective; senior year; **fourth fifth** of the second semester; five lecture periods; one credit.

13. **Horse Feeding.** A study of practical horse feeding, as in A. H. 9.

Prerequisite, A. H. 8.

Elective; senior year; **last fifth** of the second semester; five lecture periods; one credit.

14. **Research Work.** In this course the student is expected to select some line for individual investigation either by library methods or otherwise. The object is partly to allow the stu-

dent to study some particular line in which he is especially interested and partly to give him training in studying out problems for himself as he will have to do after leaving school. This course is open only to those who are taking Animal Husbandry as their major or who have taken practically all of the regular courses in Animal Husbandry.

Elective; senior year; second semester; three credits.

15. **Animal Husbandry Literature.** A study is made of the various books, periodicals and bulletins pertaining to Animal Husbandry. The student is made familiar with the leading books and information which he may obtain from those sources. An especial study is made of the periodicals dealing with live stock, their standing, influence, and the part of the country and kind of farming to which they are best adapted. Some attention is given to the bulletins of the state stations and of the U. S. Department of Agriculture; methods of obtaining these bulletins and where and how to obtain any desired information. The student cannot be expected to read all the available material along Animal Husbandry lines but rather to become familiar with the various sources of information so that when any particular question arises he will know at once the books, periodicals, or bulletins that will give him the most authoritative information on that subject.

Elective; senior year; first semester; three lectures; three credits.

16. **Advanced Breed Study.** I. A study is made of the breeds of beef cattle and sheep with especial reference to the prominent strains and families, noted animals, and leading breeders of the present day. The distribution, popularity, and general standing of the breeds in Oregon are also discussed. The lecture work is accompanied by practice in judging from the breed type standpoint.

Elective; junior year; first semester; one lecture period; one laboratory period; two credits.

17. **Advanced Breed Study.** II. A continuation of Course 16, but with reference to swine, horses and dairy cattle.

Elective; junior year; second semester; one lecture period; one laboratory period; two credits.

18. **Advanced Stock Judging.** This course consists of practical judging of all kinds of stock with an occasional visit to surrounding fairs and stock farms.

Open only to students who have completed all the other courses in judging offered.

Elective; senior year; second semester; two laboratory periods; two credits.

19. **Seminar.** I. Semi-monthly meetings are held in which papers on Animal Husbandry subjects are read and discussed. These papers are prepared under the supervision of the department, although considerable latitude is allowed in the selection of subjects and the manner of presentation.

Open to Juniors and Seniors; first semester; one-half credit.

20. **Seminar.** II. This is a continuation of course 19.

Second semester; one-half credit.

NOTE.—Courses 3 and 4 will not be given until the entering Freshman class reaches the Junior year, at which time courses 16 and 17 will be dropped.

DAIRY HUSBANDRY.

Professor Kent.
Mr. Simpson.

It is the purpose of the Department of Dairy Husbandry to effect an improvement in the dairy industry, for which a large part of the state is so well fitted. More cows and better ones, as well as more and better dairy products, is the ultimate aim of the instruction and the experimentation carried on by this department.

In order to meet the needs of the industry and the demand for information, the department offers the following courses:

The four-year course, designed to qualify students for agricultural college and experiment station work, for inspectors of dairy products and dairy establishments in city, state, or government service, or as managers of creameries or large dairy farms;

The six-week course, designed to fit students to become operators of creameries, cheese factories, and dairy farms.

Besides these courses, dairy instruction will form a portion of the work offered to students in the Secondary course in Agriculture, also to students in Domestic Science and Art.

The laboratories for the technical work in dairying are located on the first floor of the Agricultural Hall, and comprise a main work-room for butter and cheese making, a milk testing laboratory, boiler and engine room, cheese-curing and storage rooms, class room and office. A large variety of cream separators gives the student an opportunity to judge of the respective merits of the leading machines of this class now on the market. Churns, pasteurizer, testers, and other apparatus, all in practical operation, are at hand for purposes of instruction.

The dairy wing of the new college barn has accommodations for thirty cows, being equipped with the Drown iron stall, cement floors and mangers, and drainage to permit of thorough and rapid cleaning with water when desirable. There are also boiler, storage and separating rooms, comprising an aggregate floor space 16x33 feet. Two types of milking machines will be in regular use.

The dairy herd, which is used for experimental and demonstration purposes, consists of typical representative animals of the leading dairy breeds, including the Jersey, Guernsey, Holstein, Ayrshire, and the milking type of Shorthorn.

One of the largest commercial creameries in the State is located at Corvallis, an opportunity thus being presented for the study of manufacturing problems as they exist under every day creamery conditions.

The following courses are offered:

A. **Farm Dairying I.** A general study of the secretion, composition, and adulteration of milk; methods of separation, determination of fat, ripening of cream, churning, and preparing butter for the market.

The Secondary course in Agriculture; first year; second semester; two credits; one recitation; one laboratory period.

B. **Farm Dairying II.** Additional work along lines indicated in Course A; farm cheese making; operation of milking machines, and other dairy machinery; herd records.

The Secondary course in Agriculture; second year; first semester; two credits; one recitation; one laboratory period.

1. **Milk and Cream Testing.** A study of the Babcock test as applied to milk and cream, and other milk products; the use of Farrington's and Mann's acidity tests; fermentation tests; use of the lactometer; composite sampling and testing.

The courses in Agriculture; sophomore year; first semester; two credits; one recitation; one laboratory period.

2. **Advanced Butter Making.** A study of the physical and chemical properties, composition and separation of milk; effect of different degrees of acidity of the cream upon the resulting butter; the principles of churning, packing, and marketing butter; and the operation of churns and separators.

Required of students electing Dairy Husbandry as a major; junior year; first semester; five credits; three recitations; two laboratory periods.

Prerequisites: Course 1; Chemistry 8.

3. **Cheese Making.** A study of the importance of the quality and composition of milk in the manufacture of Cheddar cheese; the principles involved in setting, churning, heating, milling, etc.; special shapes and sizes; the construction and ventilation of curing rooms.

Required of students electing Dairy Husbandry as a major; junior year; second semester; three credits; two recitations; one laboratory period.

Prerequisites: Course 1; Chemistry 8.

4. **Research Work.** A study of various authorities on dairying, together with the work of Experiment Stations along the same line. Some original investigation will also be included in this course.

Required of students electing Dairy Husbandry as a major; senior year; first semester; two credits.

Prerequisites: Courses 1, 2; Chemistry 8.

5. **Factory Management.** Consists of location, organization, construction, drainage, and ventilation of creameries and cheese factories; creamery refrigeration, and general management. The object of this course is to fit the student to superintend or manage large factories or other dairy establishments.

Required of students electing Dairy Husbandry as a major; senior year; first semester; three credits; recitations, and inspection of dairy establishments.

Prerequisites. Same as for Course 4.

6. **Technology of Milk.** A study of the utilization of milk and its products, such as the preparation of condensed, certified, modified, and hygienic milk, milk sugar, casein; and the food value of milk and its products.

Required of students electing Dairy Husbandry as a major; senior year; second semester; two credits; two recitations.

Prerequisites: Courses 1, 2; Chemistry 8.

7. **Dairy Herd Management.** Best methods of feeding for milk production; principles governing the construction of stables, stalls, and ties; systems of keeping, feeding, breeding, and milk production records; manner of disposal of milk produced; rearing the dairy calf; selection and care of bulls.

Elective for students in Dairy Husbandry, Animal Husbandry and Agronomy; senior year; second semester; two credits; two recitations.

8. **Preparation of Ice Cream and Ices.** A study of the preparation of ice cream, sherbets, and ices, made on a private or commercial scale.

Elective; senior year; second semester; one credit; lectures and laboratory.

Prerequisite: Course 1.

9. **Thesis.** Original work on some dairy subject may be worked out in co-operation with the Department of Chemistry, Bacteriology, or Animal Husbandry. Students should consult the head of the Dairy Department concerning thesis subject not later than the beginning of their senior year.

Required of students electing Dairy Husbandry as a major; senior year; second semester; two credits.

10. **Home Dairying.** A study of the secretion, composition and characteristics of milk; methods of separation; care of milk and cream; preparation of ice cream and ices.

Elective in the course in Domestic Science and Art; second semester; two credits; recitation, lectures, and laboratory.

Dairy Husbandry students will be required to take laboratory work in Agricultural Chemistry, second semester, junior year, said subject being allowed on credits for major study. It is recommended that such students carry this subject throughout the junior year.

11. **Short Course.** Students passing the work required in the ten-week course will receive a Dairy Certificate after one season's subsequent employment in a creamery or cheese factory, provided their monthly reports to the Dairy Department are made as required, and that the condition of the factory, upon personal inspection by a representative of the department, is found in a satisfactory condition. (See Winter Courses.)

HORTICULTURE.

Professor Lewis.
Mr. Cole.
Mr. Peck.
Mr. Bouquet.
Mr. Allen.
Mr. Vincent.

The scope of the work in Horticulture is very broad, giving instruction in Pomology, Olericulture, Floriculture, Landscape Gardening, and School Gardening. In these courses the student is first thoroughly grounded in the fundamentals and is then allowed to specialize as he may desire. Thus, he may fit himself for station or Government work, or enter the many lines in business open to him, such as fruit growing, truck gardening, floriculture, or landscape gardening, for in all these lines there are splendid opportunities throughout the Pacific Northwest. At the present time there are openings for young men to become managers of orchards or to develop fruit lands for outside investors; those having a taste for teaching can find a broad field in college or rural work or as supervisors of horticulture. The required work for students electing Horticulture covers a wide range, giving the student a thorough training not only in plant propagation and the general principles of orchard management and vegetable growing, but in floriculture and landscape gardening as well, thus broadening his views and interesting him in the aesthetic and all that pertains to more beautiful surroundings.

The courses consist of lectures, reference readings, field exercises, and laboratory work. Much stress is placed upon the practical phases of all the work. In all courses horticultural truths are illustrated by practice whenever possible. Students are given field and laboratory exercises in all such phases as planting, seeding, budding, grafting, cultivating, thinning, pruning, harvesting, and packing.

Well equipped laboratories and class rooms, orchards containing many varieties of fruit, vegetable gardens, a large campus well supplied with ornamental shrubbery forcing-houses, and a good reference library, are some of the features enabling the department to offer thorough courses.

The following courses are offered:

A. **Elementary Orchard Practice.** A course dealing with the first principles of fruit growing, in which the practical phases are emphasized, stress being laid on such phases of orcharding as harvesting, packing, pruning, spraying, establishing of orchards, and the essentials of small fruit culture.

The Secondary course in Agriculture; first year; first semester; two credits; one recitation; one laboratory period.

B. **Elementary Plant Propagation and Vegetable Gardening.** In this course the requirements of the secondary student are kept in mind, the work leading up to more advanced courses in the freshman and sophomore years. The propagation of the common plants used in horticulture is studied; and practical laboratory exercises are given in the planting of seed, making of cuttings, and the ordinary methods of budding and grafting. The last part of the semester is devoted to a study of the first principles of vegetable gardening.

The Secondary course in Agriculture; first year; second semester; two credits; one laboratory period.

1. **Plant Propagation,** consists of a very thorough study of the propagation of plants used in horticulture, including a study of soils used in nursery and seed bed; seeding and transplanting; the multiplying of plants by separation and division, soft and hard wood cuttings, layerings, and the many forms of budding and grafting. The greenhouses, laboratories, orchards, and campus offer splendid opportunities and furnish abundant material for practical work.

The course in Agriculture; freshman year; second semester; two credits; one recitation; one laboratory period.

2. **Orchard and Garden Practice.** Problems concerning the home orchard and garden are dealt with in this course, the aim being to give those students who cannot further pursue a horticultural course the necessary training to develop ideal home orchards and gardens; at the same time the work is fundamental for students desiring to pursue horticultural

studies further. The common orchard and garden problems, such as selecting a site, setting and cultivating the orchard, pruning, spraying, and choosing varieties, are considered.

The course in Agriculture; sophomore year; first semester; three credits; two recitations; one laboratory period.

3. **Practical Pomology.** Especially offered for those students desiring training in commercial orcharding; deals largely with advanced problems connected with the growing and handling of our leading fruits. The laboratory training is made a strong feature of this course, every student being required to become proficient in fruit packing to the extent that he can put up a first-class box of fruit. The problems of pruning, thinning, cultivation of soil, use of cover crops, and irigation, are thoroughly studied. Instruction is by lectures dealing with Pacific Coast conditions. Practical exercises are conducted in orchard, packing house, and laboratory.

Elective; junior year; first semester; three credits; two recitations; one laboratory period.

4. **Orchard Practice I.** A Saturday morning course, dealing only with the practical phases of orchard management. The various orchard problems, such as harvesting, packing, pruning, and the handling of small fruits, are taken up according to season. This is a course of great value to students who are to take up practical orcharding as a life work. In addition to work in the college orchards, students will be allowed to undertake outside work for remuneration, under departmental supervision.

Elective; junior year; first semester; two credits; two laboratory periods.

5. **Orchard Practice II.** This is a continuation of course 4.

Elective; junior year; second semester; two credits; two laboratory periods.

6. **Floriculture.** An elementary course in the cultivation of greenhouse and home plants and of the common annuals and perennials used in outdoor work. The course is designed to broaden the views of those students who are unable to take advanced courses in floriculture, and to make them more useful citizens.

Required of Agricultural juniors electing Horticulture as a major; first semester; two credits; one recitation; one laboratory period.

7. **Grape Growing.** A special course in Viticulture, devoted to the best methods of growing, harvesting, and packing the American and European types of grapes. Such phases as exposure, elevation, soils, use of resistant stock, pruning, harvesting, packing, shipping, and storing are included. The manufacture of by-products will also be treated.

Elective; junior year; first semester; two credits; two recitations.

8. **Small Fruit Culture.** In this course a study is made of the problems concerned with the growing and marketing of such fruits as the strawberry, currant, gooseberry, raspberry, blackberry, Loganberry and cranberry. A large collection of small fruits in the college orchard aids materially in the study.

Elective; junior year; second semester; three credits; three recitations.

9. **Nut Culture.** Nut culture is becoming a very important branch of Horticulture. In this course a special study will be made of the culture of such nuts as the walnut, filbert, almond, pecan, and the peanut. Instruction is very largely by lectures on the special adaptability of the Pacific Coast to nut culture. Laboratory periods will be given on the most sucessful methods of grafting nuts.

Elective; junior year; second semester; two credits; two recitations.

10. **Landscape Gardening.** All students should be interested in everything that pertains to the decoration of the home, the improvement of school grounds, the beautifying of streets, and the establishment of recreation grounds and parks. In this course the general principles of landscape are so treated as to apply to the upbuilding of the aesthetic in everyday life.

Required of Agricultural juniors electing Horticulture as a major; second semester; two credits; one recitation; one laboratory period.

11. **Systematic Pomology.** The description, nomenclature, and classification of native and sub-tropical fruits and nuts is

studied. In addition, training is given in judging and displaying fruits. Types of fruits which have been collected from various parts of the State and from other states will be studied.

Elective; senior year; first semester; two credits; one recitation; one laboratory period.

12. **Commercial Pomology.** This course deals with the problems of marketing fruits, methods of packing, transportation, and storage, the building of packing and storage houses. A study of associations as a factor in the handling of fruit, of market requirements, and of the handling of by-products, makes this course decidedly valuable.

Elective; senior year; first semester; two credits; two recitations.

13. **Seminar I.** This is a course especially arranged for senior and graduate students in Horticulture. A study is made of some of the advanced problems. Articles from the leading magazines on horticultural subjects, also station and government publications, are reviewed. A course of lectures and class drill is given in outlining and conducting experiments and investigations.

Required of Agricultural seniors and advanced students having their major in Horticulture; first semester; one credit.

14. **Seminar II.** Required of Agricultural seniors and advanced students having their major in Horticulture; second semester; one credit.

15. **History and Literature of Horticulture.** A study is made of the literature and history of horticulture from the time of the Egyptians up to modern times.

Elective; senior year; first semester; two credits; two recitations.

16. **Plant Breeding.** This course embraces a study of the theories of evolution as related to plant breeding, and their application to the practical aspects of the work, such as cultivation, selection, acclimatization, hybridizing, and pollination. Lectures, reference reading, and practical problems given in laboratory and field.

Elective; senior year; second semester; four credits; three recitations; one laboratory period.

17. **Sub-tropical Pomology.** A study of the culture of such sub-tropical fruits as oranges, figs, and olives.

Elective; senior year; second semester; two credits; two recitations.

18. **Principles of Vegetable Gardening.** In this course a study is made of the history and the botanical relationship of vegetables, as well as the best methods of growing them, including such phases as location, soils, cultivation, and forcing of our common vegetables. Lectures and exercises in field and laboratory are conducted.

Elective; junior year; first semester; four credits; three recitations; one laboratory period.

19. **Greenhouse Construction.** A course especially adapted for students specializing in floriculture and truck gardening. The problems connected with the building of greenhouses, hotbeds, and cold frames, are dealt with; also, selection of materials; the various systems of heating and ventilating, and the value of the various types of buildings. Lectures and laboratory exercises in greenhouse and drafting room are conducted.

Elective; junior year; second semester; three credits; one recitation; two laboratory periods.

20. **Forcing Vegetables.** A course dealing with the problems connected with the forcing of such vegetables as lettuce, cucumbers, tomatoes, rhubarb, and melons, in cold frames, hotbeds, and greenhouses. Lectures and exercises in the greenhouses.

Elective; senior year; first semester; four credits; two recitations; two laboratory periods.

21. **Systematic Olericulture.** Description, nomenclature, and classification of vegetables. Exercises are given in displaying and judging vegetables.

Elective; senior year; first semester; one credit; one laboratory period.

22. **Truck Gardening.** Only the purely commercial aspects of vegetable gardening are offered in this course. Such phases as capital, labor, rotation, tools, harvesting, marketing, and others are involved in the growing of vegetables on an extensive scale for market or canning purposes.

Elective; senior year; second semester; five credits; four recitations; one laboratory period.

23. **Annuals and Perennials.** A study of the culture and value of the hardy annuals and herbaceous perennials, and their use in Floriculture.

Elective; senior year; first semester; three credits; two recitations; one laboratory period.

24. **Forcing Flowers.** In this course are studied the propagation, and problems of culture, such as soils, ventilation, and heat, connected with the forcing of plants used in the florist's trade.

Elective; senior year; second semester; four credits; two recitations; two laboratory periods.

25. **Plant Materials** is a course of study covering the use of trees and shrubs in Landscape Gardening.

Elective; senior year; first semester; two credits; one recitation; one laboratory period.

26. **Theory and Design I.** This course deals with the technical and professional side of landscape gardening as related to the establishment and improvement of private estates, public grounds, parks, and cemeteries. The lectures given deal with the principles of landscape as applied to actual problems. Field exercises and excursions are conducted for illustrating the work.

Elective; senior year; first semester; three credits; one recitation; two laboratory periods.

27. **Theory and Design II.** This is a continuation of course 26.

Elective; senior year; second semester; three credits; one recitation; two laboratory periods.

28. **Field Practice in Landscape Gardening.** This course includes the application of the general principles of theory and design to practical problems in the field.

Elective; senior year; second semester; two credits; two laboratory periods.

29. **Floriculture.** Instruction is given in various subjects as, proper soils, planting of seed, transplanting, making of cuttings, cultivation, principles of heating and ventilation, control

of insect pests and diseases, connected with the cultivation of the common household and dooryard flowers. In addition, such problems as the grouping and arranging of flowers so as to obtain the best color harmonies and most pleasing effects while growing, as well as for decoration purposes, are included. The lectures are supplemented by reference readings and laboratory periods in greenhouse and garden.

The course in Domestic Science and Art; junior year; first semester; three credits; one recitation; two laboratory periods.

30. **Landscape Gardening.** The general principles of Landscape Gardening are taught, the aim being to give the student sufficient foundation to understand landscape gardening as applied to home decoration, to interest the student in the home beautiful, the improvement of our public school grounds, and city and village streets. A study is made of photographs and famous landscape paintings showing good taste and design in the various phases of landscape gardening. Lectures and reference readings are supplemented by field exercises.

The course in Domestic Science and Art; junior year; second semester; three credits; two recitations; one laboratory period.

31. **Vegetable Gardening and Small Fruit Culture.** In this course such problems as care of soil, seeding, rotation, fertilizing, and the selection of the best varieties of vegetables and small fruits for use in the home garden are considered. Lectures, laboratory and field exercises.

The course in Domestic Science and Art; senior year; second semester; three credits; two recitations; one laboratory period.

POULTRY HUSBANDRY.

Professor Dryden.
Mr. Lunn.

In recognition of the importance of the poultry industry, and to meet the demands of young men who aim to give special attention to this industry after leaving college, a department of Poultry Husbandry has been established. Poultry keeping is a part of every well regulated system of diversified farming and at the same time offers oportunities for profit making as a special business. The plant that is being equipped at the College will give exceptional opportunities for a study of the practical as well as the theoretical side of the poultry industry. The instruction will be supplemented by practical work in the judging, feeding, and management of fowls.

1. **Poultry Husbandry I.** This course includes a study of breeds of domestic poultry, their history and classification. The practical qualities of the various breeds will be emphasized. It also includes a study of market qualities of different breeds, the preparation of fowls for market, killing, dressing, etc. The student will make a critical study of live and dressed specimens of the breeds and judging practice will be given.

Elective; first semester; four credits; two recitations; two laboratory periods.

2. **Poultry Husbandry II.** In this course the housing of poultry will be discussed; plans of different types of houses will be studied. This course will also include a study of poultry foods and feeding with reference to egg and meat production. Incubation, natural and artificial, will be treated. Practice in building poultry houses, operating incubators, and feeding and managing a pen of fowls will be given.

Elective; second semester; four credits; two recitations; two laboratory periods.

FORESTRY.

Professor Lake.

The courses of instruction in Forestry aim primarily to fit the forester to care for the forest and its crops as the farmer cares for the farm and its crops. They likewise aim to meet the needs of those men who desire to enter the government forest service as fire wardens, rangers, and cruisers, but who feel that they cannot take the time necessary to complete a degree course. The courses also aim to serve those who expect to make forestry their profession by preparing them for advanced work in the higher technical courses of the graduate forest schools.

The student is closely associated with the forestry impulse from date of entrance upon College duties, as "The Forest Club," an association of students and instructors, "formed for the purpose of promoting the forestry interests of the State," claims him as an active member upon registration, and he is at once assigned to work upon some live forestry topic. The club work continues throughout the courses and is an important factor in several ways.

The several courses contemplate that the student shall do as much of the real work of forestry as is practicable under the conditions of environment of a college. Frequent excursions to the nearby forests of the coast range, together with visits to the various milling and manufacturing plants easily accessible to Corvallis, are features of the courses. Ecological, dendrological, and sylvicultural studies may be pursued with advantage in the coniferous and mixed forests that occupy the foothills and higher benches of the coast range of mountains adjacent to the college grounds on the west, while studies in mensuration, protection, reforestation, grazing, and other phases of the work may be conducted under most favorable conditions at "Camp Reserve," in the heart of the Cascade Mountains, near Mount Jefferson.

A. **Elementary Principles I.** A course of study covering foundation principles, and including a discussion of the general functions and uses of forests; forest products, markets, manufactures and commerce, together with a brief consideration of the history of forestry in Europe and America, and the present status of the forestry movement in the United States.

The secondary courses in Forestry and Commerce; first year; first semester; three credits; lectures and recitations.

B. **Elementary Principles II.** This course is a continuation of Course A.

The Secondary courses in Forestry and Commerce; first year; second semester; three credits; lectures and recitations.

C. **Sylvicultue I.** The principles of seedage as applied to forest trees. The structure, dissemination, germination, vitality, collection and preservation of tree seeds; seed beds, nursery practice, transplanting, pruning, thinning, pure and mixed plantings, nurse trees, reproduction by coppice, seeds, plants.

Secondary course in Forestry; second year; first semester; two credits; two laboratory periods.

D. **Sylviculture II.** A continuation of Course C.

The Secondary course in Forestry; second year; second semester; two credits; two laboratory periods.

1. **The Forest.** This course considers the principles underlying the growth, development and maintenance of forest areas; the tree as a factor in forest types and as a unit in the forest crop; the forest as a factory; as a wealth producer; as an agent in national upbuilding; as a factor in ameliorating climatic conditions, regulating water flow and utilizing poor, thin and impoverished soils.

Freshman year; first semester; three credits; lectures and recitations.

2. **Dendrology.** The study of trees from a taxonomic standpoint. Particular stress is placed upon those features which enable one to identify trees afield.

Sophomore year; first semester; five credits; two lectures; three laboratory periods.

3. **Forest Industries.** A discussion covering the various industries dependent upon forests and forest products, together with the consideration of questions relating to improved ways of utilizing our forest crops.

Sophomore year; second semester; four credits; four recitations.

4. **Forest Administration.** General principles of administration; working plans; estimation; methods of harvesting the crop; principles governing the execution of working plans.

Junior year; second semester; four credits; four recitations.

5. **Forest Economics.** A consideration of taxation, tariff, transportation, markets, labor, organization, trusts, public welfare, commerce.

Junior year; second semester; four credits; four recitations.

6. **Forest Finance.** The value of the forest; stability of investment; dividends on the investment; local problems in forest finance.

Junior year; second semester; one credit; one recitation.

7. **Lumbering.** Lumbering practices; utilization of waste; cutting; seasoning; commercial standards; bridge stuff; framing; sheathing; finishing; lath; shingles; furnishings; sash, doors, and blinds. Grading lumber; markets and marketing.

Senior year; first semester; four credits; one lecture; three laboratory periods.

8. **Timber Technology.** Timbers as to strength; toughness; firmness; flexibility; grain and texture; warping; swelling; density; and the influence of these properties upon the market value of timbers; factors which determine the values and uses of various economic woods.

Senior year; first semester; four credits; one lecture; three laboratory periods.

9. **Forest Policy and Protection.** Legislation for forest conservation, protection and renewal; National and State enactments regarding reserves, parks, water-sheds and irrigation. The relation of forests to National and State industries, statistics, protection against fires, trespass, insects, diseases, weeds and storms.

Senior year; second semester; five credits; lectures and recitations.

10. **Trees and Shrubs.** A special course in the study of Pacific Coast trees and shrubs with reference to their distribution, association, habits and habitats, uses and values for lumber,

shade, windbreaks, roadside and other public plantings. The field work of the course covers observations upon the actual plants as found in natural and artificial plantings.

Elective; hours and credits upon consultation.

11. **Club Work I.** The Forest Club meets twice each month for the discussion of current forestry literature, legislation, news items, and general progress movements pertaining to forestry, forest service, forest products, forest industries, lumbering and the lumber trade. Required of all juniors and seniors in Forestry.

First and third Wednesdays of each month at 7. P. M.; first semester; one-half credit.

12. **Club Work II.** Continuation of Forestry 11. Required of all juniors and seniors in Forestry. First and third Wednesdays each month at 7 P. M.; second semester; one-half credit.

13. **Club Work III.** In addition to work outlined in Courses 11 and 12, juniors are required to take an active part in the affairs of the Camera Club, an organization for the advancement of "Camera Craft." Besides the discussion of topics pertaining to lenses, camera outfits, plates, films, negatives, lantern slides, transparencies and general technique, there are occasional lectures on Art and Nature, artistic photographs, protographic illustration and frequent demonstrations of materials and processes.

First Thursday each month at 7 P. M.; first semester; one-fourth credit.

14. **Club Work IV.** A continuation of Course 13.

Junior year; first Thursday each month; second semester at 7 P. M.; one-fourth credit.

15. **Club Work V.** In addition to the work of Courses 11 and 12, seniors are required to take an active part in the "Rod and Gun Club," an organization having for its special field of work the study of all matters pertaining to the fish and game interests of the forests and game preserves, game laws, game breeding, game protection, and similar subjects.

Senior year: second Wednesday each month; first semester at 7 P. M.; one-half credit.

16. **Club Work VI.** A continuation of Course V.

Senior year: second Wednesday each month; second semester at 7 P. M.; one-half credit.

Summer Camp.

All students in the regular course in Forestry are required to spend two sessions of eight weeks each during July and August of the junior and senior years in the forest. One session is required at "Camp Reserve"; a part of the other, at the option of the Forester, may be spent in lumber camps, mills or factories. The object of these summer sessions is two-fold: to give the student a practical working knowledge of the subject in hand, and to advance his technical training. In view of these ends the work of the summer session is diverse and is presented in two general ways, lectures and field work.

Junior Year.

Lectures. The junior year lectures are presented as a series of camp-fire talks and discussions covering the following topics:

Methods of field-work; forest transportation, trail and road construction; pack animals, selection, care, and management; forest-service; duties of fire and game wardens, rangers, and other officers; forest physiography, including field geography, geology, and plant distribution; timber cruising, mensuration; forest fires, prevention, fighting, remedies; grazing in forest areas; fish and game; hunting, trapping, fishing, and breeding.

Woodcraft. This is a series of daily practical exercises in field forestry. The subjects of which the student will be required to have an actual working knowledge are packs and packing; trail and road making; camp equipage; camp making; camp fires; water supply, camp cooking; woodsmen's tools, their use and abuse; use and care of fire arms; dressing and preserving game; care of skins, furs, hides, and pelts.

Field Work. Observations, general and special, daily or weekly assignments; geology, meteorology, hydrography, biology, dendrology, sylviculture, mensuration, records, charting, mapping, photographing.

Time Factor. The field work in the junior year camp session is apportioned in hours as follows: Surveying 72; mensuration 72; dendrology 40; sylviculture 40; botany 20; zoology 24; entomology 20; geology 24.

Office work, mapping and charting 32; records 8; lectures, fish and game 8; forest service 12; general topics 12.

Senior Year.

Lectures. The senior year lectures will cover the following topics: influence of forests and trees upon national life; forest laws; forest policies; forest management; forest administration; national forests; national and state parks and their values; the forest as a health resort.

Field Work. The field work for the senior year will cover the following subjects: Logging; transportation of timber; camp management, milling, pulping, distilling, utilizing waste, preserving timbers and lumber, working plans.

SCHOOL OF DOMESTIC SCIENCE AND ART.

Professor Greer.
Miss Van Liew.
Miss Van Deusen.
Miss Tobin.
Miss Ewing.
Mrs. Angell.

SECONDARY COURSE.

Domestic Science.

A. **Plain Cookery I.** Cooking of types of all common foods with thorough study of the underlying principles involved in the processes of cooking eggs in various ways, scrambled, poached, boiled and in omelets, plain, meat and jelly; the use of eggs in desserts, salads, sandwiches, with a consideration of their dietetic value; simple flour mixtures, such as muffins, popovers, biscuits and pancakes; vegetables with special consideration of the best methods by which flavor and attractive appearance may be maintained. A lesson in the care of the kitchen, including cleaning of utensils, stoves, sinks and refrigerators will be given and their proper care emphasized at all times.

First year; first semester; two credits; two laboratory periods.

B. **Plain Cookery II.** A continuation of A, cooking of cereals, serving of uncooked cereals; meats, the best method of cooking the various cuts to develop flavor; value of broiling, boiling and roasting; lessons in the making of soups, plain cake and bread will also be given during this term.

First year; second semester; two credits; two laboratory periods.

C. **Cookery, Serving, Simple Dietetics I.** An elaboration of Courses A, B, with attention given to good combinations in serving such as fish and puddings with their appropriate sauces; which vegetables to serve with certain meats, such as peas with lamb, apples with pork, and rice with chicken for palatability and proper proportion of food principles. Practice in the cooking and serving of meals for home occasions will give an opportunity for the selection of menus in which will be considered the best combination of soups, meats, salads and desserts.

Second year; first semester; two credits; two laboratory periods.

D. **Cookery, Serving, Simple Dietetics II.** A continuation of C, with attention to the preparation of refreshments for special occasions, such as luncheons, receptions and dances. The care of the dining room and its appointments, and table decorations will be studied. The preparation and serving of food for common disorders in digestion; bran and gluten biscuits, broths, gruels, junkets, custards, egg and milk combinations will receive consideration.

Second year; second semester; two credits; two laboratory periods.

E. **Observational Work I.** The observation of the home and its surroundings with particular reference to order and cleanliness of living rooms, specifically a student's bed room, with discussions of methods of work to secure most attractive and useful general arrangement of the furnishings, nicest appearance of floor, table, dresser and wash basin. Personal cleanliness and neatness will also be discussed. An observational study of trees, flowers and birds is introduced to cultivate the habit of learning from seeing and to interest the student in outdoor life and in making the surroundings of the home attractive.

First year; first semester; one credit; one laboratory period.

F. **Observational Work II.** A continuation of Course E.

First year; second semester; one credit; one laboratory period.

G. **Laundering I.** This course deals with the principles of laundry work through practical application. The subjects considered are: treatment of hard water, choice of starch, bluing and soap, laundering of bed, body, and table linen.

Second year; first semester; one credit; one laboratory period.

H. **Laundering II.** Pertains to dresses, waists, skirts, collars and cuffs, silks and flannels, removal of stains, cleaning of laces and colored embroideries. Soaps and other laundry reagents will be made in class. Lectures on equipment and care of house laundry will be given. Practical cleaning and pressing of garments will be required of the students. An effort will be made at all times to meet the student's current need by means of her class work.

Second year; second semester; one credit; one laboratory period.

Domestic Art.

A. **Plain Sewing I.** Both hand and machine sewing, to give the student a knowledge of the principles of construction and execution; training in neatness, accuracy, and economy of material. Hemstitching of towels and runners will require of the student the development of good judgment and the power of producing regularity in stitches; hemming of towels and napkins, making of laundry bags, simple dressing jackets and kimonos will give practice in simple sewing and prepare the student for more difficult work.

First year; first semester; two credits; two laboratory periods.

B. **Plain Sewing II.** Continuation of Course A. Practical problems in drafting and making of simple undergarments and unlined summer dresses.

First year; second semester; two credits; two laboratory periods.

C. **Sewing, Simple Dresses and Millinery I.** Prerequisite. Courses A, B. This course will require of the student more original and individual work, greater power of execution, ability to adapt principles already learned to new problems. Each student will make an unlined dress for school or evening wear, also an attractive hat suitable to wear with the dress made in class or one that will meet her own immediate need.

Second year; first semester; three credits; three laboratory periods.

D. **Sewing, Simple Dresses and Millinery II.** Continuation of Course C. Practice in drafting skirt, waist and sleeves, making of a more elaborate dress and hat. A variety of summer hats will be made by the class to show the use of different materials and the styles appropriate to the occasions for which they are planned.

Second year; second semester; three credits; three laboratory periods.

DEGREE COURSES.

Domestic Science.

1. **Science of Cookery Applied to Practical Work.** The cooking of simple foods such as vegetables, cereals, flour mixtures, eggs, meats, and fish will be supplemented by class discussion of methods and results. The reading of books and bulletins, the study of chemical and physical phenomena occurring in cooking. The care of food materials, such as milk, meat, fish, eggs and vegetables in large quantities will be discussed. Practical methods of cleaning the kitchen and its furnishings, the refrigerator, stove, brass, copper, tin and aluminum utensils,

painted and varnished surfaces, glass, and sinks will be studied on a scientific basis.

Freshman year; first semester; three credits; two laboratory periods; one recitation.

2. **Advanced Cookery I.** This course will be in advance of previous courses in its adaptation to the more mature minds of the students. Emphasis will be laid on good combinations in serving to give proper nutrition in health, such as the study of balanced dietaries, through the making of menus, cooking and serving of meals for every-day use and social occasions.

Sophomore year; first semester; two credits; two laboratory periods.

3. **Advanced Cookery II.** Continuation of Course 2, with attention given to the care of the dining room, table laying and serving, preparation of dishes for such special occasions as picnic parties, birthday luncheons, and banquets.

Sophomore year; second semester; two credits; two laboratory periods.

4. **Dietetics I.** The study of the value of the various food principles and proportion present in common foods. Comparison of good menus served for family and dormitory use. Special diets for infant, invalid, child, and hard working man.

Sophomore year; first semester; two credits; two laboratory periods.

5. **Dietetics II.** Continuation of Course 4. Study of various dietaries which have been developed scientifically and empirically, tested by comparison of home and institutional dietaries. The preparation of a food museum showing the food constituents present in their relative proportions in one pound each of twelve typical foods.

Sophomore year; second semester; two credits; two laboratory periods.

6. **Laundering I.** Subject matter and treatment practically the same as that of Courses 5 and 6. Higher ideals in work, better technique and better power of accomplishment will be expected in this course, which will be adapted to the teaching of this subject as well as to home use.

Junior year; first semester; one credit; one laboratory period.

7. **Laundering II.** Continuation of Course 6.

Junior year; second semester; one credit; one laboratory period.

8. **Special Cookery I.** Infant and child diet. Theoretical work explaining bacterial actions such as souring of milk and bread, ripening of cheese and vinegar, spoiling of fruit, study of changes brought about by yeast in bread, and fermentation industries. So-called fancy cookery, puff paste, cream puffs, aspic jellies, boning of fowls, chafing dish delicacies, lobster a la Newburg, Welsh rarebit, etc.

Elective; junior year; first semester; two credits; two laboratory periods.

9. **Special Cookery II.** Infant diet will be studied with reference to the condition of organs and agencies in digestion; modified milk and infant foods, from beef juices, barley gruel, fruit juices, eggs, and cereals, will be made. General care in abnormal conditions requiring attention on the part of the mother, will be considered. Invalid cookery, including the preparation and serving of foods adapted to common diseased conditions of the digestive and circulatory systems; dishes from gluten flour, oysters, eggs, fruits, and milk will be made. This work will be of service to students of home nursing. Throughout the year instruction in serving will be given as occasion offers; also special problems in cooking with limitations as to numbers, expense, and time of preparation.

Elective; junior year; second semester; two credits; two laboratory periods.

10. **Marketing I.** Consideration of the economical purchase and preservation of foods; familiarity with the various types of markets; practice in obtaining raw materials for various purposes in both large and small quantities.

Elective; junior year; first semester; one credit; one laboratory period.

11. **Marketing II.** Continuation of course 10.

Elective; junior year; second semester; one credit; one laboratory period.

12. **Bacteriology I.** The aim in this course will be to give an appreciation of the reality of bacteria and allied organisms such as yeasts and moulds, their function in the world, their use in the arts, their place in nature's food cycle, their agency in disease, the dependence of real cleanliness upon them, how their growth may be encouraged when desired or discouraged or prevented entirely. Moulds will be collected from the air and various food materials. Three common types will receive special attention by both culture and microscopic methods; common bread mould, cheese mould and the mould of decaying vegetation. Baker's yeast will be studied; favorable and unfavorable conditions for growth will receive consideration, optimum temperature, amount of moisture and effect of sugar upon the growth. Also the disadvantageous result of the growth of yeasts in preserves and how it may be prevented. The students will prepare the culture media used in class and have practice in various methods of sterilizations useful in the home as well as in the laboratory.

Senior year; first semester; three credits; two laboratory periods; one recitation.

13. **Bacteriology II.** Continuation of Course 12, dealing with the study of some of the common bacteria causing decomposition; the isolation of bacteria from various sources such as river and well water, milk, cream, butter, and air of public and private rooms; the effect of heat, sunlight, and chemicals upon the growth of bacteria. The problems of the home, better understood and solved through the knowledge of bacteriology are many and of great importance.

Senior year; second semester; three credits; two laboratory periods; one recitation.

14. **House Sanitation, Physics.** The consideration of such problems as the best and least expensive methods of heating, ventilating, and lighting; also good plumbing and systems for supplying hot and cold water and carrying away waste water. All practical applications will be based upon a thorough understanding of the fundamental physical principles involved.

Senior year; first semester; two credits; two laboratory periods.

15. **Home Nursing.** Lectures, demonstrations, and practice in home nursing problems such as dressing cuts and burns, bandaging, arrangement of the sick room, bed making, restoration from fainting and drowning, general care in cases of fever and other common diseases.

Elective; senior year; second semester; one credit; one laboratory period.

16. **Normal Methods I.** A course in methods of teaching, consisting of lectures, observational work, and practice teaching with criticism.

Elective; senior year; first semester; one credit; one recitation.

17. **Normal Methods II.** A continuation of Course 16. Schools of different grades in the vicinity, both city and country, will be visited by the students with the purpose of deciding in which grades cooking and sewing should be taught and giving the necessary information for planning intelligent courses of study for such grades. A Saturday morning class of children will be held in the College school kitchen and sewing rooms. The members of the Normal Methods class will in turn teach this class and later discuss it in their own class period so that all may receive some benefit from each class taught.

Elective; senior year; second semester; one credit; one recitation.

Domestic Art.

1. **Simple Dressmaking I.** Similar to Courses A, B, but requiring better technique, broader comprehension of work and greater power of accomplishment than Courses A, B; more difficult styles of street or dinner gowns will be made.

Freshman year; first semester; two credits; two laboratory periods, instead of Business Administration 9 for students entering from high schools where they have not had courses in sewing.

2. **Simple Dressmaking II.** A continuation of Course 1.

Freshman year; second semester; three credits; three laboratory periods; may be substituted for handwork, Domestic Art 3.

3. **Handwork.** A course involving the construction of useful

and beautiful articles illustrating what the mind and hand can conjointly do, thus making the most of the student on his executive as well as his reflective side. This work involves splicing of rope, knotting, braiding, netting, stenciling, and art embroidery.

Freshman year; second semester; three credits; three laboratory periods.

4. **Basketry and Weaving I.** A form of decorative art which involves the construction of such articles as will require careful consideration of color, form, and design affording opportunities for the expression of the originality of the individual in the making of reed and raffia baskets, small woven pieces for pillow tops and cushions for various purposes, or table covers, or floor rugs.

Sophomore year; first semester; two credits; two laboratory periods.

5. **Basketry and Weaving II.** A continuation of Course 4, requiring the completion of a large problem or the beginning of a more difficult one than previously attempted.

Sophomore year; second semester; two credits; two laboratory periods.

6. **Advanced Sewing and Millinery I.** The drafting and making of dresses, including infants' and children's clothing; also the construction of bonnets and hats suitable to the kind of dress made. Design, technique, and appropriateness of colors and material will be emphasized; attention will be given to hand sewing and embroidery where such is applicable.

Sophomore year; first semester; two credits; two laboratory periods. Prerequisites: Sewing (Domestic Art A, B, and C, D), or Sewing (Domestic Art 1, 2).

(This course is especially planned for students who have not studied sewing before entering College and may with Domestic Art 7 be substituted for Basketry and Weaving, Domestic Art 4, 5).

7. **Advanced Sewing and Millinery II.** A continuation of Course 6.

Sophomore year; second semester; two credits; two laboratory periods.

8. **House Construction and Decoration.** The application of art principles to the construction and furnishing of all parts of the house; the practical work will consist in the making of house plans, giving careful attention to the arrangement, that both convenience and beauty obtain, also the selection of materials for furnishings, woodwork, papering, furniture, rugs, curtains; expense, appropriateness, combining of colors and various textures receiving careful consideration.

Elective; junior year; second semester; three credits, three laboratory periods.

9. **Dressmaking I.** Drafting and making of costumes for various occasions, calling, dinner, dances, etc., giving experience in handling various materials and a scope for originality, good taste, beauty and appropriateness in design and costume, also the development of technique.

Elective; junior year; first semester; two credits; two laboratory periods.

10. **Dressmaking II.** A continuation of Course 9.

Elective; junior year; second semester; two credits; two laboratory periods.

11. **Tailoring.** Drafting and making tailored waists, skirts, and coats. Requires excellence in technique and perfect accuracy in construction.

Elective; senior year; first semester; three credits; three laboratory periods. Prerequisite: Dressmaking (Domestic Art 9, 10).

12. **Costume Design.** Special application of art principles to the designing of costumes and hats with a series of lectures on the "History of Costume Design."

Elective; senior year; second semester; two credits; two laboratory periods.

13. **Special Millinery.** Construction of children's hats and caps, women's bonnets and evening hats.

Elective; senior year; second semester; one credit; one laboratory period.

14. **Advanced Basketry and Weaving I.** A continuation of Courses 4, 5, involving larger and more difficult problems in

basket weaving and in the weaving of small rugs; also the weaving of fabrics on a hand loom of ordinary form.

Elective; senior year; first semester; two credits; two laboratory periods.

15. **Advanced Basketry and Weaving II.** A continuation o Course 14.

Elective; senior year; second semester; two credits; tw laboratory periods.

Physical Culture required of all students through the sophomore year and may be elected during the junior and senio years.

CIVIL ENGINEERING.

Professor Skelton.
Mr. Gardner.

1. **Plane Surveying I.** This course includes recitations lectures, field and office work in the theory and practice of plan surveying. The theory and construction of the different surveying instruments are studied and practice will be given i making their tests and adjustments. The United States publi land surveys and land laws are studied. Forms of field notes methods of balancing and plotting surveys, computing area and like work, will have due consideration. Proper emphasi will be placed upon chain surveying. Surveys will be made o assigned plats and descriptions prepared. Resurveys will b made where more than ordinary difficulty is encountered in th interpretation of descriptions and existing evidence.

The courses in Civil Engineering, Mining Engineering, an Forestry; freshman year; second semester; five credits; unti April 15, four recitations; one laboratory period; after Apri 15, five laboratory periods.

Prerequisites: Mathematics 1 and Mechanical Engineering 1.

(During the sophomore year, 1909-1910.)

2. **Plane Surveying II.** This course is a condensation o Course 1, and is designed for students in the courses in Agri-

culture and Mechanical or Electrical Engineering. The greater part of the time is spent by the student in the field with the various instruments. Exercises relating to farm surveying, drainage, irrigation, and road construction, occupy most of the time. Areas are computed, profiles are constructed, and estimates formed.

Elective; second semester; three credits; three laboratory periods, in the field or office.

Prerequisite: Mathematics 1.

3. **Engineering Drawing I.** A continuation and extension of the previous work in drawing with special reference to application in Civil Engineering. Practice in tracing and in blue and black process printing will be given.

The course in Civil Engineering; sophomore year; first semester; three credits; three laboratory periods.

Prerequisites: Mechanical Engineering 1 and 2; Drawing 1.

(Five credits; five laboratory periods during 1909-1910.)

4. **Engineering Drawing II.** This course is a continuation of Course 3.

The course in Civil Engineering; sophomore year; second semester; three credits; three laboratory periods.

Prerequisite: Civil Engineering 3.

(Not given during the year 1909-1910.)

5. **Topographic Surveying.** This course will include the execution of a complete topographic survey of an assigned tract, including base line measurement, transit, stadia and plane table work, platting and finishing the map.

The course in Civil Engineering, sophomore year, and Forestry, senior year; first semester; four credits; five laboratory periods, until the Christmas holidays.

Prerequisites: Civil Engineering 1; Mechanical Engineering 1; Drawing 1.

(During fall semester, junior year, 1909-1910.)

6. **Railroads I.** Theory of economic grades, circular and spiral curves, turnouts, earthwork computations, and similar topics.

The course in Civil Engineering; sophomore year; first semester; one credit; five recitations, from the Christmas holidays to the end of the semester.

Prerequisites: Civil Engineering 1 and 5.

(During fall semester, junior year, 1909-1910.)

7. **Railroads II.** This course is a continuation of Course 6. A reconnaissance and location survey of a line several miles in length will be made, maps and profiles constructed, and estimates formed.

The course in Civil Engineering; sophomore year; second semester; five credits; two recitations; three laboratory periods.

Prerequisite: Civil Engineering 6.

(During spring semester, junior year, 1909-1910.)

8. **Highway Construction.** This course includes a consideration of the fundamental principles of location, construction, and maintenance of roads, as well as a thorough study of the materials used in road and street building.

The course in Civil Engineering; junior year; first semester; three credits; three recitations.

(During the first semester, senior year, 1909-1910; five credits; four recitations; one hour drafting room.)

9. **Masonry and Foundations.** A study of the properties of stone, brick, lime, cement, and concrete as building materials and of their uses in foundations, retaining walls, piers, and dams; the theory of the masonry arch, retaining wall and dam. Recitations, lectures, and work in cement laboratory.

The course in Civil Engineering; junior year; second semester; four credits; three recitations; one laboratory period.

(During senior year; second semester, 1909-1910; five credits; four recitations; one period laboratory or computing room.)

10. **Roofs and Bridges I.** Both analytical and graphical methods will be applied to the determination of the stresses in roof trusses under static and wind loads and in simple bridge trusses under static and moving, concentrated and distributed, loads.

The course in Civil Engineering; senior year; first semester; four credits; two recitations; two laboratory periods.

Prerequisites: Mechanical Engineering 5 and 6.

11. **Roofs and Bridges II.** This course is a continuation of Course 10. Draw-bridges, cantilever and suspension bridges, and reinforced concrete arch.

The course in Civil Engineering; senior year; second semester; four credits; two recitations; two laboratory periods.

12. **Sanitary Engineering.** Drainage systems for populous districts, including chemical and bacterial purification of sewage; collection and disposal of garbage; street cleaning; separate and combined water carriage system; surveys, plans, and specifications; law of flow and determination of size and capacity; brick, terra cotta, cement, and concrete sewers.

The course in Civil Engineering; senior year; first semester; three credits; two recitations; one laboratory period.

Prerequisite: Mechanical Engineering 7.

13. **Water Supply Engineering.** Water supply for populous districts; gravity and pumping systems; pumping machinery, stand-pipes, reservoirs, and purification works; the preparation of plans, specifications, and contracts.

The course in Civil Engineering; senior year; first semester; three credits; two recitations; one laboratory period, designing and computing room.

Prerequisite: Mechanical Engineering 7.

14. **Irrigation Engineering.** Precipitation, run-off, and stream-flow; quantity of water required; measurements of flow in open channels; distribution systems, headworks and storage reservoirs, and other like topics. Study of a typical project including the preparation of plans and specifications.

The course in Civil Engineering; senior year; second semester; four credits; three recitations; one laboratory period.

15. **Contracts and Specifications.** A study of the general principles and laws of contracts as applied to engineering, including the preparation and study of specifications and contracts based upon engineering structures designed by the individual student.

The course in Civil Engineering; senior year; second semester; one credit; one hour recitation on lecture.

16. **Engineering Seminar I.** The members of the junior and senior classes in the course in Civil Engineering, and the

professor and instructors, constitute the Civil Engineering Seminar which meets once a week. The purpose of this seminar is to bring the student in touch with engineering literature and practice. To this end a number of journal reviews and papers on engineering subjects will be presented and freely criticised each week. The work will follow a previously arranged program.

The course in Civil Engineering; junior year; second semester; one credit.

(During the first semester, senior year, 1909-1910.)

17. **Engineering Seminar II.** See Course 16.

The course in Civil Engineering; senior year; first semester; one credit.

(During second semester, senior year, 1909-1910.)

18. **Engineering Seminar III.** See Course 16.

The course in Civil Engineering; senior year; second semester; one credit.

Courses 10, 11, 12, 13, 14, and 15 are given during the year 1909-1910 only to the fifth year or graduate classes.

ELECTRICAL ENGINEERING.

Professor Gardner.
Mr. Hawley.
Mr. Shephard.

1. **Dynamo-Electric Machinery.** In this course the student becomes familiar with the fundamental laws of electric and magnetic circuits; the structure of generators and motors; the types suited to modern requirements; methods of testing. According to given conditions, complete preliminary designs of generators are required, which are used in the drafting room later. These reports consist of sketches with dimensions of parts; types of windings; estimated resistances, losses, and efficiencies.

Junior year; first semester; three credits; three recitations Prerequisites: Physics 3 and 4.

2. **Alternating Currents.** In this course alternating currents are considered both from a mathematical and graphical standpoint. It includes the measurement of power; study of the action of resistance, inductance and capacity in series and parallel circuits; effect of variation of frequency and wave form; the general theory of alternators, transformers, induction motors, converters, and their construction.

Junior year; second semester; three credits; three recitations.

Prerequisites: E. E. 1; Mathematics 5 and 6.

3. **Advanced Alternating Currents.** The action and operation of alternating current generators; motors of synchronous and induction types, and transmission lines are considered mathematically; the Steinmetz symbolic method of solution of problems being used.

Senior year; first semester; three credits; three recitations.

Prerequisite: E. E. 2.

4. **Electrical and Magnetic Measurements.** Galvanometers, post-office resistance boxes, shunts, condensers, ammeters, and voltmeters are used for the solution of engineering problems. Insulation resistances, and location of faults in lines and cables are determined; instruments calibrated; watt-hour meters tested.

Junior year; first semester; two credits; two laboratory periods.

Prerequisites: Physics 3 and 4.

5. **Dynamo Laboratory.** Construction of direct current dynamos and motors and their operation; the applications of ammeters, voltmeters, and watt meters to the measurement of power are made familiar to the student. Field and armature resistances, and characteristic curves are obtained. Commercial tests are made.

Junior year; second semester; two credits; two laboratory periods.

Prerequisites: Physics 3 and 4.

6. **Electrical Engineering Laboratory.** Study of alternating current circuits, instruments, and machines. Use of pho-

tometers in the measurement of candle power of arc and incandescent lamps.

Senior year; first semester; two credits; two laboratory periods.

Prerequisite: E. E. 5.

7. **Electrical Engineering Laboratory.** Advanced direct and alternating current testing, including that of single and polyphase alternators; synchronous and induction motors; transformers; synchronizing, and transmission line operation.

Senior year; second semester; two credits; two laboratory periods.

Prerequisite: E. E. 6.

8. **Electrical Distribution.** The different types of electric circuits and systems of wiring are considered from an economic standpoint; aerial and underground construction; house wiring, and best forms of illumination, are studied.

Senior year; first semester; two credits; two lectures or recitations.

Prerequisites: E. E. 2 and 5.

9. **Electrical Design.** Dynamos, transformers, alternators, rotary converters are designed; the preliminary reports in E. E. 1 and 2 being used; complete sets of working drawings are made.

Senior year; first semester; three credits; three laboratory periods.

Prerequisites: E. E. 2 and 5.

10. **Power Plants.** Principles governing the location of power plants, both steam and hydraulic; the economics of transmission; selection and installation of generating units; railway construction, and rolling stock; management and testing of complete plants are considered. Time is devoted to the study of estimates, specifications, and superintendence.

Senior year; second semester; three credits; three lectures or recitations.

11. **Power Plant Design.** Consists in making drawings, specifications, and estimates for a complete plant, including design for a switchboard and distribution system.

Senior year; second semester; three credits; three laboratory periods.

12. **Seminar I.** Weekly meetings are held for the discussion of articles appearing in current periodicals and scientific papers.

Elective; senior year; first semester; one credit.

13. **Seminar II.** Elective; senior year; second semester; one credit.

14. **Electro-Chemistry.** Electric heating and electrolytic processes for the manufacture of chemicals and metals are discussed. Different types of electric furnaces and storage batteries are considered.

Elective; senior year; second semester; two credits; two laboratory periods.

15. **Telephony.** The underlying principles of the transmission of intelligence by electrical means, and the methods of operation of the telegraph, telephone, wireless telegraph, wireless telephone, and their relative values commercially are studied.

Elective; senior year; two credits; two laboratory periods.

16. **Thesis.** Most of the preliminary reading and planning is done during the first semester, while the actual investigation or construction work occurs in the second semester.

Senior year; first semester; one credit; second semester; one credit.

MECHANICAL ENGINEERING.

Professor Covell.
Assistant Professor Phillips.
Mr. Jackson.
Mr. Porter.
Mr. Knopf.
Mr. Graf.

1. **Mechanical Drawing I.** The use of instruments and the elementary principles of mechanical drawing are taught by a graded series of plates, including simple practice sheets, geometric constructions, principles of orthographic projection, shading, the helix with its application to screw-threads, and finally the complete development of a working blue-print of some simple device from sketches. Particular attention is given to freehand lettering, general neatness, and accuracy.

All courses in Engineering; freshman year and Secondary course in Forestry; second year; first semester; three credits; three laboratory periods.

2. **Descriptive Geometry.** This work consists in the graphical solution of problems involving the projection of lines, surfaces, and solids.

All courses in Engineering; freshman year; second semester; three credits; one recitation and two laboratory periods.

Prerequisite: Mechanical Drawing 1.

(During the year 1909-1910 this course is also required in the first semester of the sophomore year in all of the engineering courses, and in the first semester of the junior year in Civil, Mechanical and Mining Engineering.)

3. **Mechanical Drawing II.** A continuation of Course 1, including mechanical lettering, line shading, isometric and oblique projection, gear curves and their application to spur, bevel, and worm gearing. Following this is the preparation of a typical set of working drawings, tracings, and blue-prints of a complete machine. Rapid and business-like execution of work is insisted upon at all times.

The courses in Electrical and Mechanical Engineering; sophomore year; first semester; four credits; four laboratory periods.

(During the year 1909-1910 the above is required in the courses in Electrical and Mechanical Engineering; sophomore year; second semester; three credits; three laboratory periods.)

4. **Mechanism.** A study of mechanical movements, including velocity ratios; transmission of motion by linkwork, gearing, cams, and belting.

The courses in Electrical and Mechanical Engineering; sophomore year; second semester; four credits; two recitations; two laboratory periods.

Prerequisite: Course 2.

(During 1909-1910 this course will be required only in the second semester of the junior year in Mechanical Engineering; three credits; two recitations; one laboratory period.)

5. **Statics and Dynamics.** This course treats of the action of forces upon bodies at rest or in motion. Many original problems are worked and the practical applications pointed out.

All courses in Engineering; junior year; first semester; four credits; four recitations or lectures.

Prerequisites: Mathematics 5 and 6.

6. **Strength of Materials.** A study of the strength of materials with special reference to their use in such engineering structures as beams, trusses, girders, and shafting.

All courses in Engineering; junior year; second semester; two credits; two recitations or lectures.

Prerequisite: Course 5.

7. **Hydraulics.** This course deals with theoretical hydraulics, including statical pressure, immersion, flotation, and steady flow through pipes and orifices, as well as over weirs and in open channels. Bernoulli's therorem is taken as the basis for calculation of flow in pipes and through orifices, with such modifications as are required to allow for frictional and other resistances.

All courses in Engineering; junior year; second semester; two credits; two lectures or recitations.

Prerequisite: Course 5.

(During 1909-1910 Courses 5, 6, and 7 will be given in the senior year of all Engineering Courses instead of the junior year.)

8. **Materials of Engineering.** This is largely a lecture course dealing with the materials used in engineering structures. Iron, steel, brick, cement, timber, and stone are discussed with reference to their physical properties and adaptability to the purposes of engineering construction.

The courses in Civil and Mechanical Engineering; junior year; first semester; two credits; two recitations.

Prerequisites: Physics 3 and 4.

9. **Enginery.** It is the purpose of this course to teach the care, management and operation of steam engines, steam boilers, gas and gasolene engines in as practical a manner as possible. A large part of the work consists in handling engines and boilers while the principles are discussed in the class room.

The course in Forestry; junior year; first semester; two credits; two laboratory periods or an equivalent.

10. **Steam Machinery.** This course treats of steam boilers, feed water heaters, injectors, mechanical stokers, steam engines, governors, valve gears, indicators, and indicator diagrams. The purpose is to make the student familiar with the forms of these devices, which are of prime importance in a power plant, and to solve problems concerning their installation and use.

The courses in Electrical and Mechanical Engineering; junior year; second semester; two credits; two recitations or an equivalent.

Prerequisites: Physics 3 and 4.

11. **Engineering Laboratory I.** A brief study of experimental investigation; discussions on the reduction of data so obtained; mechanical calculating devices; the preparation of neat and accurate reports.

The calibration of gauges, weirs, indicator springs, planimeters, and other measuring instruments is followed by the usual tests on the materials of construction. These include transverse, tensile, compressive, and torsion tests of timber, iron, and steel, as well as the various standard tests on cements, stone, etc.

The Courses in Civil, and Mechanical Engineering; junior year; and in Mining Engineering; senior year; first semester; two credits; two laboratory periods.

Prerequisites: Physics 3 and 4.

(During the year 1909-1910: the courses in Civil and Mechanical Engineering; senior year; first semester; two credits; two laboratory periods.)

12. **Engineering Laboratory II.** A continuation of the preceding course including tests of lubricants, calorific power of fuels, composition of flue gases, exercises in steam calorimetry, and in valve setting by the aid of the indicator.

Efficiency tests of steam, gas, and air engines, boilers, steam pumps, air compressor, and centrifugal blower. In hydraulics: efficiency tests of a Pelton wheel and hydraulic ram, determination of the various losses of head in an experimental pipe line.

The courses in Civil and Mechanical Engineering; junior year; Mining and Electrical Engineering; senior year; second semester; two credits; two laboratory periods.

Prerequisite: Course 11.

(During year 1909-1910: the courses in Civil and Mechanical Engineering; senior year; second semester; two credits; two laboratory periods.)

13. **Machine Design I.** This course is elementary and consists largely in applying the principles discussed in mechanism and in mechanics to the design of machine parts, riveted joints, fastenings, belting, and shafting.

The course in Mechanical Engineering; senior year; first semester; four credits; two recitations; two laboratory periods.

Prerequisites: Courses 4 and 6.

14. **Machine Design II.** A continuation of Course 13, devoted to the design of complete machines, steam engines, machine tools, pumping machinery, and their installation.

The course in Mechanical Engineering; senior year; second semester; four credits; four laboratory periods.

Prerequisite: Course 13.

15. **Thermodynamics.** This course treats of the laws governing the transformation of heat into work, particularly in the steam engine. The general laws of thermodynamics are discussed and a number of practical problems are solved.

The courses in Electrical and Mechanical Engineering; senior year; first semester; three credits; three recitations or lectures.

Prerequisites: Mathematics 5 and 6; Physics 3 and 4.

16. **Internal Combustion Motors.** In this course the application of thermodynamics to gas and oil engines is studied with reference to economy of operation and the results are compared with those obtained from the steam engine. The properties and cost of fuels are discussed as well as the methods of carburation and ignition.

The course in Mechanical Engineering; senior year; second semester; two credits; two recitations or lectures.

Prerequisite: Course 15.

17. **Steam Turbines.** The steam turbine has taken its place as one of the important factors in transforming energy into work. Hence, the principles involved in its construction and operation should be well understood by engineering students. This course considers flow of steam through pipes and nozzles and its action on turbine buckets. The effects of superheating are noted and some attention is given to steam turbine design.

The course in Mechanical Engineering; senior year; second semester; two credits; two recitations or lectures.

Prerequisite: Course 15.

18. **Hydraulic Motors.** The application of the principles of theoretical hydraulics and mechanics to the development of power by means of water wheels, is discussed. The different types of turbines and impulse wheels are considered with reference to their forms and adaptability.

The course in Mechanical Engineering; senior year; first semester; two credits; two recitations or lectures.

Prerequisite: Course 7.

(During 1909-1910, courses 15, 16, 17, and 18 are required only of students taking the fifth or graduate year.)

SHOP WORK.

A. **Woodwork I.** Mechanic Arts Course. This course in woodwork will be divided into three parts, carried on simultaneously.

a. A lecture course on methods and materials used in Mechanic Arts, including bench equipment, use and care of bench tools; carpentry and laying out work; joinery or putting work together; fastenings, structure and defects of wood; methods of cutting and seasoning; furniture construction and design; wood finishing, painting, staining, varnishing, waxing and polishing. This will require one hour a week.

b. One hour a week will be devoted to mechanical drawing and a study of drawings to enable the student to make drawings of the articles which he is called upon to make in the shop and to interpret drawings in general.

c. A woodwork course, including joinery, primary construction work, furniture construction and finishing. The purpose of this course is to instill a knowledge of the principles of joinery by teaching the use and care of woodworking tools, to develop skill in their use by means of progressive exercises. The application of the joints is shown in the construction of finished products. All of the operations must be methodically and accurately performed, and the finished product have a neat and workmanlike appearance.

Secondary course in Mechanic Arts; first year; first semester; five credits; one lecture; four laboratory periods.

B. **Woodwork II.** A continuation of Course A.

The Secondary courses in Mechanic Arts; first year; second semester; five credits; one lecture; four laboratory periods.

C. **Woodwork III.** Mechanic Arts Course. Those who desire to specialize in woodwork may do so by devoting the whole time allotted to industrial work to this branch. Such students will continue along the same lines as indicated in Courses A and B and during the second year will enter upon high grade cabinet work.

The Secondary course in Mechanic Arts; second year; first semester; five credits; five laboratory periods.

D. **Woodwork IV.** A continuation of Course C.

The Secondary course in Mechanic Arts; second year; second semester; five credits; five laboratory periods.

E. **Patternmaking I.** Mechanic Arts Course. Those who prefer patternmaking to cabinet work may devote the second year to that subject, following the plan outlined under C and D.

The Secondary course in Mechanic Arts; second year; first semester; five credits; five laboratory periods.

F. **Patternmaking II.** A continuation of Course E.

The Secondary course in Mechanic Arts; second year; second semester; five credits; five laboratory periods.

G. **Woodwork V.** This course will be equivalent to the first six weeks of the Mechanic Arts Course (A) and must be taken at the same time.

It consists of six lectures on the care and use of bench tools, six lessons in mechanical drawing; and twenty-eight laboratory periods in the practical use of the various tools in the way of planing, sawing, chiseling, etc.

In this course each student is required to have a drawing board, T square, compass, lead pencil and three sheets of mechanical drawing paper; the cost of which will not exceed one dollar.

The Secondary course in Agriculture and Forestry; second year; first six weeks of first semester; two credits; one laboratory period daily for six weeks.

H. **Woodwork VI.** Work leading to a course in Architecture. Requirements for entrance, two years' course in Secondary Manual Training or Mechanic Arts Course (A) or its equivalent.

This course will consist of one lecture each week, three hours of drawing per week, embracing mechanical, perspective, and design work.

Practical experience in the use of the steel square in laying out braces, rafters, and trusses, ready for the framing, will be made a strong feature of the course. The laying out and building to scale forms and arches for concrete piers, columns, arches, and foundations will be taken up along with the framing and constructing of summer cottages, suburban homes, barns, septic tanks, and different styles of fencing and other necessities about the well-kept home.

This course will be given on Saturdays and may be taken in lieu of Secondary Mechanic Arts Courses C. E, or G. However, unless twenty or more students desire to take the course, it will not be given, on account of limited shop room.

The Secondary course in Mechanic Arts; second year; first semester; five credits; five laboratory periods.

I. **Woodwork VII.** This is a continuation of Course H, and is given in the Secondary course in Mechanic Arts; second year; second semester; five credits; five laboratory periods.

J. **Blacksmithing I.** The student is taught to make and manage the forge fire, to shape iron by bending, upsetting, drawing, and welding. The course also includes occasional lectures on the principles involved in managing the fire and in forging.

Elective; second year of the Secondary courses in Mechanic Arts; first semester; five credits; five laboratory periods.

K. **Blacksmithing II.** A continuation of Course J; devoted to making useful articles and tools of iron and steel. A large part of the time is given to making and tempering steel tools. This course is also accompanied by lectures on the different grades of steel and the effects of heat treatment.

Elective; second year of Secondary course in Mechanic Arts; second semester; five credits; five laboratory periods. Prerequisite: Course J.

L. **Blacksmithing III.** After completing the preliminary exercises, the student enters upon work having direct application to farming and forestry, such as the mending of farm implements, making chains, clevices and hooks, ironing whiffletrees and neckyokes, and sharpening tools.

Required in the Secondary courses in Agriculture and Forestry; second year; second semester; two credits; two laboratory periods.

M. **Steam-fitting and Plumbing I.** This course is intended as an aid to those who desire to follow the occupation of steamfitting or plumbing. The practical work includes the installation of piping for steam, water, or gas; a study of the principles involved in expansion, radiation, and water hammer. The work in plumbing takes up the construction of bends, traps, and various types of wiped joints; also a study of ventilation; the proper arrangement of soil and water pipes, hot water boilers and tanks.

Elective; second year; first semester; five credits.

N. **Steam-fitting and Plumbing II.** This is a continuation of Course M.

Elective; second year; second semester; five credits; five laboratory periods.

(During the year 1909-1910, these courses will not be given.)

1. **Woodwork VIII.** This course, though designed for the Mechanical and Electrical Engineering students, is divided into two courses (a) and (b), because of the lack of Secondary Manual Training in Mechanic Arts in some parts of the State and the presence of it in other parts.

(a) Students who have not had the advantage of Secondary Manual Training in Mechanic Arts will enter the class in bench work for the first semester or until they have developed sufficient skill to enter the advanced work.

(b) Students who have had a year or more of Secondary Manual Training in Mechanic Arts work will enter the class in wood turning preparatory to pattern work.

The course on bench work will consist of a series of exercises in planing, sawing, and chiseling, preceded by a lecture course explaining each step in advance.

The course in wood turning is taken in conjunction with lectures on the lathe, its care and management, and the care and use of the turning tools.

After acquiring sufficient skill in turning between centers and chuck turning, the primary principles of patternmaking will be taken up, which is the main feature of the course.

Required in Mechanical and Electrical Engineering Courses; freshman year; first semester; three credits; three laboratory periods.

2. **Mechanical and Electrical Patternmaking III.** The students in Engineering will take up the art of patternmaking where they left off at the close of the first semester, beginning

with simple exercises and advancing until they have made patterns for various parts of machines and other structures, such as engine cylinders, gear wheels, pulleys, dynamo frames, and special patterns as assigned. The lectures explain the principles of moulding directly related to patternmaking; the shrinkage of metals, warping and twisting of woods, glue and other fastenings; the making of cores and core boxes; methods of marking and storing patterns; and how to estimate the weight of iron castings.

The courses in Electrical and Mechanical Engineering; freshman year; second semester; three credits; three laboratory periods.

3. **Woodwork IX.** This course is designed for Mining and Civil Engineering students, and consists primarily of a series of constructive exercises in carpentry and joinery, accompanied by one lecture a week dealing with the care and use of bench tools; the use of the steel square in framing and laying out work. The first constructive exercises are designed to teach the use of the various hand tools as well as the forms of joints and ties used in truss and bridge framing, dictated by good engineering practice.

Upon completing this series of exercises, the preceding joint work will be developed into trusses and bridges which upon being completed will be placed in the testing laboratory for experimental purposes.

During the latter part of the semester the Mining Engineering students specialize in mine timbering and the Civil Engineering students in cement forms and trusses for foundation and arch construction.

Mining course; freshman year; first semester; three credits; three laboratory periods.

4. **Woodwork X.** This course is equivalent to that in the Winter Short Course in Mechanic Arts, and on account of shop room and limited instructing force, will have to be taken at the same time, or during the first seven weeks of the second semester. The purpose of this course is to give instruction in the care and use of modern woodwork benches and their equipments. Six lectures will be given in this course, each lecture

preceding its practical application. Skill in the manipulation of tools cannot be obtained in this short time, but instruction and practice will be given in sharpening chisels, planes and other edge tools; in jointing, setting, and filing hand-saws and in the use of the steel square as in the elementary principles of carpentry. As much stress will be placed on planing, sawing, and chiseling exercises as the time will permit.

The Degree courses in Agriculture and Forestry; freshman year; last six weeks of first semester or first six weeks of second semester; two credits; one laboratory period each day for six weeks.

5. **Blacksmithing IV**. The student is taught to make and manage the forge fire; to shape iron by bending, upsetting, drawing, and welding. Many useful articles are made, consisting of hooks, staples, rings, clevices, and chains.

The courses in Mechanical and Electrical Engineering; sophomore year; first semester; three credits; three laboratory periods.

6. **Blacksmithing V.** This is a continuation of Course 5, and is devoted to more advanced work, consisting largely of work in steel. The principle of hardening and tempering are taught and applied in making hammers, chisels, drills, cutting tools for the shop, and in doing special work as assigned.

The course in Mechanical Engineering; sophomore year; second semester; three credits; three laboratory periods.

7. **Blacksmithing VI.** A course for students in Agriculture. After completing the first exercises, the student enters upon work having a direct application to farming, such as the mending of farm implements, making and mending of chains, clevices, and hooks; ironing of whiffletrees and neckyokes; sharpening of tools.

The courses in Agriculture and Forestry; freshman year; second semester; two credits; two laboratory periods.

8. **Blacksmithing VII.** A course for students in Mining Engineering. After learning the care and management of the forge fire, the student will devote his time to making and tempering cold chisels, rock drills, picks, etc.

The course in Mining Engineering; sophomore year; first semester; two credits; two laboratory periods.

(During the year 1909-1910 this course is not required.)

9. **Machine Shop I.** The work in the machine shop includes both bench work and machine work. Upon first entering the shop the student is taught the principles of chipping, filing, and hand finishing. This occupies the first half of the semester. Machine work is then taken up through a series of exercises on lathe, shaper, planer, drill press, and milling machine. As soon as accuracy and proficiency are shown on the part of the student, he is assigned to construction work upon engines, dynamos, motors, or machine tools.

The course in Mechanical Engineering; junior year; first semester; and in the course in Electrical Engineering; sophomore year; second semester; three credits; three laboratory periods.

10. **Machine Shop II.** A continuation of Course 9, devoted to machine construction and milling machine work. Special attention is paid to economical shop methods of doing work.

The course in Mechanical Engineering; junior year; second semester; three credits; three laboratory periods.

11. **Machine Shop III.** A course for students in Electrical Engineering. Special attention is given to the mechanical construction of dynamos, motors, and laboratory apparatus.

The course in Electrical Engineering; junior year; first semester; two credits; two laboratory periods.

12 and 13. **Machine Shop IV and V.** These courses are a continuation of the work outlined in the junior year, and are intended for those who desire to devote further time to this branch, or for those who are engaged upon construction work in the preparation of theses.

Elective; three credits; three laboratory periods.

Prerequisites: Courses 9 and 10.

MINING ENGINEERING.

Professor Parks.
Mr. Cooke.

1. **Crystallography and Blowpipe Analysis.** This course is intended as a preliminary one, and is a preparation for the work in Determinative Mineralogy, which follows. Only such portion of the subject is especially emphasized as is of practical value in the determination and proper understanding of minerals. The student is given a thorough drill in the more practical portion of the subject. The course is presented through lectures, textbooks, laboratory work, and individual quizzes. In the laboratory work, each student is required to become thoroughly familiar with crystal forms and combinations by working with the wooden crystal models, and later, with the aid of a pocket lens and contact goniometer, to determine the crystal forms of a greater number of natural crystals.

Sophomore year; first semester; four credits; two recitations; two laboratory periods.

Prerequisites: Chemistry 1 and 2; Mathematics 1 and 2.

2. **Determinative Mineralogy.** In this course, about one hundred and sixty of the most important mineral species are presented by lectures, in which special emphasis is laid on the recognition of minerals by means of their physical properties and crystal forms. The course is not intended to train the student to determine any mineral whatever, but rather to recognize at sight, with the aid of a pocket lens and knife, such minerals as are likely to be met with in actual mining work. With this object in view, as thorough a drill as time will allow is given in the actual handling and determination of minerals in the laboratory. In the work, each student is expected to handle, determine, and be examined on, approximately twelve hundred individual specimens.

Sophomore year; second semester; four credits; two recitations; two laboratory periods.

Prerequisite: Mining Engineering 1.

3. **General Geology.** This study deals with the principles

of dynamical, structural, stratigraphic, and historical geology. It includes a discussion of the different agencies, such as atmospheric, aqueous, igneous, and organic, which have been instrumental in producing the earth in its present form and structure. Students make excursions to places of geological interest to verify points discussed in the class room.

Sophomore year; second semester; three credits; three recitations.

Prerequisites: Mathematics 1, 2, and 3; Chemistry 1 and 2.

4. **Engineering Geology.** This includes a discussion of the principles of dynamical and structural geology, as well as a study of the more common minerals and rocks, special emphasis being laid upon structural materials.

Elective in the course in Civil Engineering; sophomore year; second semester; three credits; three recitations.

Prerequisites: Mathematics 1, 2, and 3; Chemistry 1 and 2.

5. **Economic Geology.** This course deals with the application of the science of geology in industrial relations and operations. It requires an elementary knowledge of chemistry, mineralogy, and geology, and includes the discussion of the mode of occurrence and origin of minerals and ore bodies, especially those containing the precious metals. Attention is also given to other natural products of economic value, such as coal, iron, petroleum, and building stones.

The courses in Mining Engineering and Forestry; senior year; first semester; three credits; three recitations.

Prerequisites: Mining Engineering 1, 2, and 3.

6. **Lithology.** The object of this course is to drill the student on all of the more commonly occurring rocks in such a way as to render their identification reasonably accurate. The methods pursued are purely those applicable to the hand specimens without aid of microscopic sections. The subject is presented by means of lectures and textbooks, supplemented by laboratory work.

Senior year; first semester; two credits; one recitation; one laboratory period.

Prerequisites: Mining Engineering 1, 2, and 3.

7. **Excavating and Tunneling.** This study deals with discussions of the various methods of excavating and breaking ground, prospecting, boring, tunneling, and shaft sinking. The various tools used in excavating, boring, and drilling, and the use of explosives in breaking ground are described in detail in the class room.

Junior year; first semester; three credits; three recitations.

Prerequisites: Mining Engineering 1, 2, and 3.

8. **Mine Surveying.** This course supplements the course in General Surveying (Civil Engineering 2), taken in the Civil Engineering department. The student is taught the methods used in locating and patenting mining claims, and in underground surveying. Instruction is given in carrying the meridian into the mine, laying out the workings, keeping notes, estimating areas and tonnage, the plotting of notes, construction of maps, and many other duties which are usually assigned to the mining engineer. This will serve as preliminary to the more practical work in connection with the summer school.

Junior year; first semester; three credits; one recitation; field work, two laboratory periods.

Prerequisite: Civil Engineering 2.

9. **Mining.** This is a study of the various methods used in securing the mineral products, as well as the general management of mines. The subject includes methods of timbering; methods of mining, pumping, ventilation, transportation, hoisting, mine sampling, and reporting; installation of machinery, and surface improvements. The subject is presented largely through lectures and directed reference work.

Senior year; second semester; three credits; three recitations.

Prerequisites: Mining Engineering 7 and 12.

10. **Ore Dressing.** A discussion of the various methods of concentration and the mechanical preparation of ores for metallurgical treatment. The subject is studied under the following main divisions: jaw and gyratory breakers; rolls; stamps; special, and fine grinding apparatus; sizing apparatus, such as the various types of screens and classifiers; concentrating machinery, including jigs, tables, and vanners.

Senior year; first semester; three credits; two recitations; one laboratory period.

Prerequisites: Mining Engineering 2, 3, and 12; Physics 3 and 4.

11. **Mining Law.** The object of this course is to give the student a fundamental knowledge of the laws regulating the location, possession and operation of mineral rights in the United States. The prominent part which litigation plays in every mining camp makes it necessary for the mining engineer to be prepared along this line.

Senior year; second semester; one credit; one lecture.

Prerequisites: Mining Engineering 5 and 8.

12. **Fire Assaying.** Instruction is given in the assaying of gold, silver, and lead in ores and metallurgical products by scorification and crucible methods. The student is given a thorough drill in the theory and reactions involved, supplemented largely by laboratory work, the subject being treated from a scientific and rational point of view rather than from the "rule of thumb." Each student is required to make a large number of assays upon previously sampled pulps, which he must check within very close limits.

Junior year; second semester; four credits; one recitation; three laboratory periods.

Prerequisites: Chemistry 1, 2, and 6; Mining Engineering 2.

13. **General Metallurgy.** This course is an outline of the metallurgy of all the common metals except iron, and is devoted to a description of the processes of obtaining the metals from their ores, as well as the refining of the metals. Some of the detailed parts of the study are: The physical properties of metals; refractory materials; construction and operation of the various types of furnaces; fuels, calorimetry, and pyrometry; cyanidation and chlorination of gold ores; the Russel, Washoe, and other wet methods for silver. The various modifications of the cyanide process receive particular attention.

Elective; first semester; three credits; three recitations.

Prerequisite: Mining Engineering 2.

14. **Metallurgy of Iron and Steel.** This course is a discussion of the iron industry as we find it today. It includes the

manufacture and purification of pig iron; manufacture of wrought iron and crucible steel; Bessemer, open-hearth, cementation and crucible processes for steel; mechanical treatment of steel; heat treatment of steel, etc.

Junior year; second semester; three credits; three recitations.

Prerequisites: Chemistry 1 and 2; Physics 3 and 4.

15. **Metallurgy of Copper.** This is a more advanced course in metallurgy, and includes a thorough and detailed study of the underlying principles upon which methods are based, rather than descriptions of processes or apparatus. It is the aim in this course to deal largely with the *reasons why* instead of the *means how*. Although the work deals extensively with copper, the principles are common to the whole subject of metallurgy.

Elective; first semester; three credits; three recitations.

Prerequisites: Mining Engineering 12 and 13.

16. **Seminar I.** The Mining Engineering Seminar meets once a week while the College is in session, and has for its members the students of the junior and senior classes, as well as the members of the instructing corps. At each meeting a prepared program is given, consisting of reviews of the most timely articles found in the current numbers of the technical journals, and papers on engineering subjects, both of which are discussed freely by the members of the Seminar.

Senior year; first semester; one credit.

17. **Seminar II.** Senior year; second semester; one credit.

18. **Mining Engineering Summer School.** Immediately after the close of the College year in June, the junior and senior students go into some prominent mining district for a few weeks of summer work in surveying, and mine and metallurgical inspection. Visits are made to mills and smelters in operation. The work is planned to develop the student's power of observation, and the ability to report concisely such observation. A large part of the time is devoted to making a survey of some mine.

The course in Mining Engineering; at the close of the junior and senior years.

19. **Industrial Geology.** Lectures on the naturally occurring geologic products which are of economic importance with special reference to the undeveloped industries of the United States.

The course in Commerce; junior year; second semester; three credits; three lectures.

COMMERCE.

Professor Bexell.
Professor Crawford.
Professor Horner.
Mr. ——————

BUSINESS ADMINISTRATION.

A. **Business Forms and Bookkeeping I.** In this course the student becomes familiar with a great variety of labor saving forms used in the modern business office; the actual forms used by typical concerns in all parts of the country are studied and compared. Manifolding and labor saving devices of all kinds are studied with constant view to secure greater accuracy and to diminish work.

Two hours per week practice in Penmanship (see Business Administration G).

Secondary course in Commerce; first year; first semester; five credits; five recitations.

B. **Business Forms and Bookkeeping II.** The elements of double entry bookkeeping; construction of balance sheets and reports. Practice in penmanship continued (see Business Administration H).

Secondary course in Commerce; first year; second semester; five credits; five recitations.

Practical Bookkeeping I. The laws of debit and credit reviewed and illustrated by correspondence and office practice, exercise in checking, construction and interpretation of balance sheets; much practice in commercial correspondence; writing bills, invoices, receipts, bills of lading, legal forms, etc. W. and R. New Illustrative Bookkeeping. Commission and wholesale.

Secondary course in Commerce; second year; first semester; five credits; five double periods.

Practical Bookkeeping II. A thorough course in the essentials of accounting as practiced in modern business houses.

Secondary course in Commerce; second year; second semester; five credits; five double periods.

E. **Business Methods for the Farm and Shop I.** Accounting and business management. Farm bookkeeping and business forms; organization of a model farm from a financial point of view; marketing products; transportation and markets; household and personal accounts.

Secondary course in Agriculture, Forestry, and Mechanic Arts; second year; first semester; two credits; two recitations.

F. **Business Methods for the Farm and Shop II.**

(a) Farm Arithmetic. Measurement of land and description of boundaries; measurement of lines, stocks, etc.; conversion of cubic measures into measures of weight and capacity; computation of inventories, bills, and pay rolls; dairy arithmetic, etc.

(b) **Rural Law.** The general principles of common and statutory law are discussed and explained; special phases of law affecting the farm, such as titles to real estate, deeds, mortgages, county records, etc.; landlord and tenant; eminent domain, and right of way; water rights, and boundaries; laws governing shopping, insurance, banking, etc.; court proceedings.

Secondary course in Agriculture, Forestry, and Mechanic Arts; second year; second semester; two credits; two recitations.

G. **Penmanship I.** Writing practice and lettering. Students entering the first year are expected to have acquired a good hand in the grades, but considerable time is devoted during the first year in mastering the best form of business writing and lettering. Lettering, display cards, and design receive attention.

Given as part of Courses A and 1; two practice periods throughout the first semester; one credit when taken alone.

H. **Penmanship II.** A continuation of Course G.

Given as part of Courses B and 2; two practice periods throughout the second semester; one credit when taken alone.

1. **Office Facilities and Business Practice I.** This course is similar to Course A, but considerably more work will be required for the same credit. Students who have completed Courses A, B, C, and D may elect stenography instead of courses 1 and 2.

Freshman year; first semester; five credits; five double periods.

2. **Office Facilities and Business Practice II.** This work is carried on between fellow students and commercial schools in the leading lines of business, affording excellent drill in correspondence and office practice.

The College maintains completely equipped offices in banking, and wholesaling. On completion of the theoretical work and the business practice, the student is placed as manager of one of the offices and held responsible for all its operations.

Two hours a week are devoted to penmanship in Courses 1 and 2 (see Business Administration G and H).

Freshman year; second semester; five credits; five double periods.

3. **Accounting, Auditing, and Business Management I.** A thorough study of bank and advanced accounting and auditing. Various systems are studied and compared. Office practice and inter-communication work similar to that described under Courses 1 and 2 form a part of this Course; but here the student assumes the management of the office, while the routine work is done by less advanced students. Recitations, lectures, and reports.

Sophomore year; first semester; six credits; five double periods.

4. **Accounting, Auditing, and Business Management II.** A practical application of previous courses in accounting and business management as applied to corporations. Manufacturing, railroading, and merchandising receive special attention.

(b) **Cost Accounting.** The theory and practice of cost accounting. The various methods used in England and America.

Sophomore year; second semester; six credits; five double periods.

5. **Business Organizations and Management.** (a) Firms and Joint Stock Companies. A study of the internal management of a large business; the different duties of the various departments; the advantages of different methods of organization as regards economy and the preservation of good will. Value of trade marks, patents, local interest, etc.

(b) Corporations. The growth of corporations; their causes and forms; the promotion, financiering, incorporation, and capitalization of corporate consolidation; their organization and securities; position and relation of stockholders and directors; receiverships and reorganizations.

Junior year; first semester; four credits; four recitations.

6. **Theory and Practice of Advertising.** A study of the fundamental principles of modern advertising. Special emphasis is given to the peculiarities of composition in newspaper and circular advertising, proof-reading, effectiveness of design, illustration, coloring, and display, follow-up systems, etc.

Junior year; second semester; four credits; four recitations.

7. **Public Accounting.** This is a research course under the direction of the professor in charge. Special stress is laid on preparation for Certified Public Accountancy. The course embraces the following subjects: (1) a general course in analyzing accounts of various typical corporations, and the installation of systems best suited to the business in hand. (2) The solution and discussion of a series of difficult problems selected from C. P. A. examinations.

Elective for seniors in Commerce; first semester; three credits; three recitations.

8. **Public Auditing.** The principles governing an audit of partnerships and corporations of any magnitude according to approved professional methods. The organization and methods of a typical firm of public auditors. The order of procedure in an actual audit. The auditor's reports and certificates. Actual audit of local concerns whenever practicable.

Elective for seniors in Commerce; second semester; three credits; three recitations.

9. **Home and Private Business Management.** Plans and specifications of buildings; estimates and contracts; household and private accounts.

The course in Domestic Science; freshman year; first semester; two credits; two recitations.

STENOGRAPHY.

A. **Theory and Practice of Stenography I.** (a) Gregg shorthand. This is an elementary course in the Gregg system of shorthand. The system is adapted perfectly to the hand, and enables the student to master the principles in a short time and to begin work from actual dictation early in the course.

(b) Touch typewriting. Beginning with simple exercises, the student learns correct fingering by the touch, or "sightless" method. Special attention is given to proper care and mechanism of the machine. The various standard makes of machines are studied and compared.

Second year; first semester; five credits; five double periods.

B. **Theory and Practice of Stenography II.** A continuation of Course 1, with special emphasis on the application of principles. Dictation, covering various lines of simple business correspondence, is given and must be transcribed on the machine.

Second year; second semester; five credits; five double periods.

C. **Typewriting I.** A special course in typewriting arranged for students who do not take stenography.

The Secondary course in Forestry; first year; first semester; two credits; two double periods.

D. **Typewriting II.** Continuation of Course C.

First year of Secondary course in Forestry; second semester; two credits; two double periods.

1. **Stenography I.** After a thorough mastery of the textbook, dictation and advanced letters are taken up. Great care is given to the arrangement and neatness of the transcribed

notes. The student will also be required to do some manifolding in connection with this course.

Sophomore year; first semester; six credits; five double periods.

2. **Stenography II.** A continuation of Course 1. In connection with this course, the student must also do some stencil work and become familiar with the mimeograph and neostyle.

Sophomore year; second semester; six credits; five double periods.

3. **Advanced Stenography I.** (a) Reporting and office practice. After a thorough review of the text-book, various forms of correspondence, legal documents, speeches, specifications, editorial matter, court testimony, etc., are taken up. Each student will be called upon to serve as secretary to different members of the Faculty from two to four weeks during the last semester of his course.

(b) **Typewriting, Manifolding, and Filing.** An advanced course for those who specialize in stenography. In addition to the elementary principles given in Stenography A and B the student makes copies of correctly written correspondence, legal forms, etc.; also personal composition and dictation. Much time is devoted to manifolding and filing.

Junior year; first semester; four credits; four double periods.

4. **Advanced Stenography II.** (Continued.)

Junior year; second semester; four credits; five double periods.

5. **Court Reporting and Office Management.** Reports of lectures. The student is required to submit not less than twenty verbatim reports of lectures and addresses during the year. The reports must be properly transcribed and submitted to the teacher for approval.

Elective; senior year; first semester; three credits.

6. **Court Reporting.** In this course the student is required to spend a large share of his time in the courts, and to render at least twenty verbatim reports, properly transcribed. A large amount of additional legal work will be required.

The finished work of the entire course must be passed on by the dean and the professor in charge.

Elective; senior year; second semester; three credits; three recitations.

7. **Typewriting III.** Special course for students in Pharmacy, and electives.

Freshman year; second semester; three credits; three double periods.

POLITICAL ECONOMY.

1. **The Elements of Economics.** A discussion of wealth; nature and requisites of production; exchange and distribution; the relation of the production of raw material to manufacturing and exchange of products; diminishing returns from natural agents; labor and its increase; efficiency of production; credit, interest, wages, prices, and rent; taxation, public debt, free trade, and protection; money and banking; the labor problem and co-operation.

Sophomore year; first semester; three credits; three recitations.

2. **Commercial Geography.** The main topics treated are: natural conditions affecting commerce, human control of commerce, transportation and commercial routes; discussion of the leading countries of the world under the following heads: climate, natural features, distribution of leading products, vegetable food products, vegetable and animal fibres, wood crop, minerals, manufacture, agriculture, and such collateral topics as may be necessary to supplement the work outlined. This course presupposes a fair knowledge of mathematical and political geography, and of general history.

Sophomore year; second semester; three credits; three recitations.

3. **Money and Banking.**

(a) **Money.** Money as a commodity, coinage, legal tender, gold standard, International Monetary Conferences, colonial bills of credit, revolutionary bills of credit, greenbacks, Confederate currency, silver dollars, panic of 1893, present conditions and problems.

(b) **Banking.** Practice and legal principle of banking, methods of raising capital, modes of organizing national and state banks, trust and finance companies, clearing houses, their practice, regulations, and importance, resources of a bank, and modes of lending them, duties of directors, president, cashier, tellers, bookkeepers, etc., public and private examinations and audits.

Junior year; first semester; three credits; three recitations.

4. **Corporation and Public Finance.**

(a) **Funding Operations and Corporation Finance.** Money, funds, and credit, obtaining funds by inheritance, exchange, sales of commercial credit, long time paper, etc. Funding operations by the United States Treasury; the savings bank, building and loan associations, commercial banks, trust companies, brokers, and insurance companies. The general practice of funding corporations, and other large business enterprises.

(b) **Public Finance.** History of financial systems, theories of public expenditures, various methods and practices of taxation and other sources of income, public credit, relations of the Federal Treasury to our monetary system, the preparation of financial budgets and reports form an important part of this course.

Junior year; second semester; three credits; three recitations.

5. **Advanced Economics.** (a) Lectures and recitations. Three main purposes are kept in view in this course: a clear analysis of the mechanism, functions, and philosophy of industrial society; a discussion of the fundamentals of wealth and monopoly, their origin, uses, and abuses; a dispassionate discussion of economic topics that have become political questions. Much reading and many reports are required.

(b) Research Course. Special stress is laid on the economic history of the United States. Reading of reports and theses under the direction of the professor in charge.

Senior year; first semester; three credits; three recitations.

6. **History of Commerce.** (a) Trade. The development in Egypt, Greece, Rome, Florence, Mediaeval Europe, etc., down to and including the commercial nations of modern times. Special attention is given to materials and machinery of commerce,

to trade routes, and to the relations between commercial developments and other branches of the history of civilization. The principles of modern wholesaling and retailing are discussed, and a description given of brokerage, jobbing, the commission business, general and special stores, department stores, and mail order houses.

(b) Transportation. A study of the American railway system, the several branches of the railway service, and the questions of public aid and public control. A study of inland navigation, and ocean shipping, with special reference to the United States. Lectures, assigned readings, and reports.

Senior year; second semester; three credits; three recitations.

7. **Production of Raw Materials.** A survey of latent commercial possibilities, surface indications, unexplored regions, probable demands upon the earth through future inventions; possible reclamation of inhospitable regions and of desert areas; effect of known latent resources upon the expectations and policies of mankind. Present resources of leading nations are then considered, together with their influence upon trade routes. Agriculture, Forestry, Mining, and Fishing receive special attention.

Elective; senior year; first semester; three credits; three recitations.

8. **Manufacturing.** A study of manufacturing processes through which such commodities as wheat, cotton, sugar beets, tobacco, and lumber pass, in going from the producer to the consumer. The work in indirect production considers cotton and woolen goods, steel, boots and shoes, etc. The history, development, and economic effects of labor-saving inventions.

Elective; junior or senior year; second semester; three credits; three recitations.

9. **Insurance.** Origin, purpose, development and growth of the various kinds of insurance, especially Fire, Life, and Casualty; the various plans, policies, and rates will be discussed; computation of tables, and the various phases of actuarial practice will receive attention.

Elective; junior or senior years; first semester; three credits; three recitations.

10. **Rural Economics.** (a) The fundamental principles of Production, Distribution, and Exchange, with special reference to rural life.

The financial management of the farm receives special attention.

(b) **Rural Law.** (See Political Science 7.)

The course in Agriculture; sophomore year; second semester; three credits.

POLITICAL SCIENCE.

A. **Civil Government and Administration.** (a) Civil Government. Our European ancestors; origin of states and state institutions. English and American governments compared; federal and state constitutions; state and foreign service; the executive departments; federal and state powers; political parties and issues.

(b) Federal and State Administration. A survey of the administrative activities of federal, state, and municipal governments; governments from the sociological point of view. The financial operations, preparation of budgets and reports will be considered.

Secondary course in Commerce; second year; first semester; two credits; two recitations.

B. **Elementary Commercial Law.** An elementary course, covering the law of contracts; negotiable instruments; agents; partnership, real estate, etc. Adapted for students with limited preparation.

Secondary course in Commerce; second year; second semester; three credits; three recitations.

1. **Commercial Law I.** (a) Contracts in General. Formation of contracts; offer, acceptance, form, and consideration; competence of parties, consent, and legality of subject matter. Operation of contracts, including limit of obligations and assignments; interpretation, rules of evidence and construction; discharge of contracts; the agreement performance, breach of contract, etc.

(b) Negotiable instruments. Maker's, acceptor's, drawer's, and indorser's contracts; proceedings before, upon, and after dishonor; proceedings in protesting; accommodation papers; grantor and surety; holder's position, defense, equities, agency insurance, etc.

Senior year; first semester; three credits; three recitations.

2. **Commercial Law II.** (c) Partnership Law. Formation of partnerships, essentials, liability of members, capital, profits, good-will, individual and firm property; agency for partners; dissolution, winding up, priority of distribution, etc.

(d) Corporation Law. Kinds, formation, powers, liabilities, ownership, shares, subscription, calls, notice, transfers, management, officers, directors, contractional powers, dividends, dissolution, are discussed fully from the legal point of view. The Case method is used throughout the entire course. Lectures, discussions, and reports.

Senior year; second semester; three credits; three recitations.

3. **Constitutional Law and Politics.** (a) Constitutional Law. The Constitution; rise of the American Union; distribution and powers of the government; powers of congress; powers of the executive; the judicial departments; checks and balances of governments; governments of territories and colonies; admission of new states; amendments to the Constitution; civil rights and their guarantees; protection of persons accused of crimes; protection of contracts and property, etc. Lectures, readings, reports and thesis.

(b) American Politics. Origin of political parties in the United States; changes, growth and development; party platforms.

Elective for juniors and seniors; first semester; three credits; three recitations.

4. **Comparative Study of Governments.** A comparative study of the various systems of government; Greece, Rome, Great Britain, Germany, France, Switzerland, and the United States.

Elective for seniors; second semester; three credits; three recitations.

5. **International Law.** Persons concerned; rights and duties of states; territorial jurisdiction; jurisdiction on the high

seas; agents of the state treaties; settlements of disputes; war and its effects; military occupation; neutrality, contraband, blockade, etc.

Elective for seniors; second semester; three credits; three recitations.

6. **Rural Law.** The general principles of common and statutory law are discussed and explained. Special phases of law affecting the farm, such as titles to real estate, deeds, mortgages, etc.; landlord and tenant; eminent domain, and rights of way; water rights, and boundaries; laws governing shipping, insurance, banking, etc.; court proceedings.

Part of Economics 10; one credit if taken alone. Given in connection with Rural Economics; second third of second semester.

Thesis: A thesis will be required in each of the elective courses. An additional credit may be earned in certain courses by writing a thesis on an approved subject. The subject must be announced by the dean to the College Council during the first semester, and a finished copy must be in the hands of the professor in charge not later than May first. When approved, a bound (either typewritten or printed) copy must be deposited in the College Library.

Special Lectures. A series of lectures on practical business subjects will be given during the year by prominent business men of the state. Following is a tentative list of subjects during the present year: Present Problems in Finance; Organization of a Bank; Organization of a Railroad; Organization of a Department Store; The Fishing Industry of Oregon; The Lumber Industry of Oregon; The Business Side of Farming; Commercial Expansion of the United States; Duties and Responsibilities of the Public Accountant; Captains of Industry; The Industrial Manager; Duties and Responsibilities of the Bank Cashier; Education for Business; The Power of Advertising.

PHARMACY.

Professor McKellips.
Mr. Harding.

1. **General Pharmacy.** This course is a general introduction to the subject of pharmacy, given by means of series of lectures wherein the student is made familiar with the conditions which led to the origin of the practice of pharmacy as a profession separate and distinct from that of medicine. Attention is directed to the purposes of the profession, to the scientific principles underlying it, and to the proper means for comprehending these facts with a view to their intelligent application.

The drugs, chemicals, and prepared medicines of the U. S. Pharmacopoeia are made the subject of a series of recitations.

Junior year; first semester; two credits; two recitations.

2. **Nomenclature.** The Latin language is universally recognized as the language of science. The names of all plants and animals and of many natural objects in the material world are recorded in this language. These Latin names, in so far as they have connection with the profession of pharmacy, are made the subject of systematic study.

Junior year; first semester; one credit; one recitation.

3. **Pharmacognosy I.** This subject deals with the scientific classification of the plants and animals which furnish the crude drugs used in pharmacy. The relation existing between the various drugs is shown, and the student is thoroughly drilled in memorizing the classifications and in learning from what parts of the world the drugs are obtained. He is instructed as to what particular portion of the plant or animal finds use in medicine and learns to recognize by some physical characteristic—appearance, odor, taste, etc.—samples of all the important drugs. Extensive cabinets of sample drugs are kept for this purpose.

Junior year; first semester; one credit; one recitation.

4. **Pharmacognosy II.** Continuation of Course 3.

Junion year; second semester; two credits; two recitations.

5. **Therapeutics and Doses.** The definition of medical and therapeutical terms, the classification of medicines into groups according to their therapeutical action, and the considertation of the subject of dosage, are matters to which the attention of the student is directed at this time.

Junior year; first semester; two credits; two recitations.

6. **General Pharmacy.** A continuation of Pharmacy 1, to which is added the feature of laboratory practice. The student takes up the various classes of pharmaceutical preparations and becomes familiar with the correct manner of their manufacture.

Experience has demonstrated the value of the laboratory as a factor in technical and scientific education. For this reason the course in pharmacy as offered at this institution is one in which this feature is given unusual prominence.

From crude drugs, as barks, leaves, roots, and seeds, the student manufactures finished pharmaceuticals, such as tinctures, fluid extracts, elixirs, tablets, pills, etc. Using the United States Pharmacopoeia as a laboratory manual, the student has the official requirements for purity and strength constantly before him, his attention thus being directed to these matters in a practical way.

Junior year; second semester; four credits; one recitation; three laboratory periods.

7. **General Pharmacy.** A continuation of Course 5 in preceding course, are taken up and manufactured. Attention is given to the higher class of toilet preparations, as well as to galenicals.

Senior year; first semester; two credits; two laboratory periods.

8. **Materia Medica and Toxicology I.** As indicated by the name, this course is devoted to the study of "Medicinal Materials." All substances which find general use in medicine are here given attention. All are classified with respect to the action they have upon the human system. Crude drugs are grouped according to the plant constituents, as alkaloids, glucosides, and oleoresins, which they contain. Pharmaceutical preparations are studied with respect to conposition and strength; chemicals, according to solubility and incompatibility.

The student is drilled in the matter of the recognition of pharmaceutical preparations and of chemicals. The many common names, or synonyms, in use in connection with materia medica are memorized.

Substances prominent because of certain poisonous properties which they possess, are separated into a special class and studied as a toxic group. The symptoms they produce and the proper methods for counteracting and preventing their harmful effects are matters that receive the careful consideration of the students. Provisions of the law regulating the sale of poisons within the state are explained in detail.

Senior year; first semester; three credits; three recitations.

9. **Materia Medica and Toxicology II.** A continuation of Course 8.

Senior year; second semester; three credits; three recitations.

10. **Prescription Practice I.** This work is sometimes spoken of as "extemporaneous pharmacy," and is justly regarded as that division of the profession belonging to the expert. The ability to compound, properly, intricate formulas at a moment's notice, is an art that can be acquired only by persistent study and painstaking practice. Opportunity for practice of this nature is here given. Prescriptions written by practicing physicians in various parts of the country have been collected. These afford the students practice in reading, itself often a matter of difficulty. Prescriptions presenting various types of incompatibility are compounded, as are others which afford experience in overcoming manipulative difficulties.

Senior year; first semester; three credits.

11. **Prescription Practice. II.** A continuation of Course 10.

Senior year; second semester; five credits; two recitations; three laboratory periods.

ZOOLOGY, ENTOMOLOGY, AND PHYSIOLOGY.

Professor Cordley.
Mr. Bridwell.
Mr. Ewing.
Mr. Griffin.
Miss Hill.

The instruction in this department is designed to give a general survey of the field of zoology. It aims to develop an interest in the study of native birds, insects and other animals, their relation to the plant world, to each other and to man's welfare. By means of lectures, laboratory work and field observations the student becomes familiar with the structure and habits of a few representative forms, learns something of their relationships and of the relative economic importance of the various groups and of the biological laws which govern their development. The work is adapted so far as possible to the particular needs of students in Agriculture and Domestic Science and Art. Exceptional opportunities are offered to those who desire to teach Physiology or Nature Study in the public schools. In connection with the courses in Pharmacy the required work forms a valuable pre-medical course.

The instruction in General and Economic Entomology is intended to provide the student with sufficient training to enable him to identify the common insect pests, understand their habits and life-histories, and apply the most approved methods for their control. The lectures upon Crop Pests also deal with the principal insect and fungous diseases of crops and their control.

Advanced students in Entomology are provided with excellent opportunities for special instruction and research work.

The laboratories of the department occupy seven rooms on the third floor of Agricultural Hall and are well supplied with apparatus, reference books, bulletins, periodicals and collections.

1. **Biology.** An elementary course designed to give the student a fundamental conception of the structure and physiological activities of animals and of their relation to the work

of the world. Incidentally, it introduces the student to laboratory methods of study, familiarizes him with the use of simple and compound microscopes and simple reagents, develops his perceptive powers, gives him practice in recording his observations in the form of notes and drawings, and in connection with Botany A, lays the foundation for the study of scientific agriculture, which is but the interpretation and application of biological laws.

The laboratory work begins with a careful study of the newt, but particular attention is given to the study of the single-celled forms, since it is believed that the student can thus best gain the desired conception of the origin of the activities of higher animals. Consideration is likewise given to the economic importance of these low forms, and their relation to certain diseases of man and of domestic animals.

The courses in Agriculture, Domestic Science and Art, Forestry and Pharmacy; freshman year; first semester; three credits; one lecture; two laboratory periods.

2. **Zoology I.** A field and laboratory study of invertebrate animals which are economically important. Particular attention is given to the habits of those which are parasitic upon man or upon domestic animals, such as the liver-fluke, tape-worms, trichina and other nematodes; to those which attack cultivated plants like the nematode root-worms, mites, insects, etc.; and to those having food value, i. e., clams, oysters, crayfish, shrimps, crabs and lobsters. Such other types are studied as are considered necessary to give the student a proper perspective of the invertebrates as a whole and to illustrate various biological laws.

The courses in Agriculture, Domestic Science and Art, and Forestry; sophomore year; Pharmacy, junior year; first semester; three credits; one lecture; two laboratory periods.

3. **Zoology II.** A continuation of Course 2, but dealing with such vertebrate types as Amphioxus, lamprey, fishes, frogs, snakes, birds, and mammals. Together with Course 2, it is designed to give the student a general idea of the animal kingdom as a whole, and of the relative economic importance of the various groups.

The courses in Agriculture, Commerce, Domestic Science and Art, Forestry and Pharmacy; sophomore year; second semester; three credits; one lecture; two laboratory periods.

4. **Physiology and Hygiene I.** This course includes a study of the chief functions of the human body and of the principles of hygiene. As a foundation for the study of function, the laboratory course includes some work upon the gross anatomy and the histology of the various tissues and organs of a typical mammal. It also includes experiments and demonstrations with foods as the source of energy, their digestion and absorption, the composition and circulation of the blood, nerve-muscle reactions, etc. Especial emphasis is placed upon the relation of pure air, mental and physical habits, food, dress, bathing, work, and recreation to health and work capacity.

The courses in Domestic Science and Art, junior year; and Pharmacy, senior year; first semester; three credits; one lecture; two laboratory periods. Elective in the course in Agriculture.

5. **Physiology and Hygiene II.** A continuation of Course 4. Courses 4 and 5 are especially valuable to those who expect to teach physiology in the public schools, and in connection with the work in Pharmacy, form a valuable pre-medical course.

The courses in Domestic Science and Art, junior year; and Pharmacy, senior year; second semester; three credits; one lecture; two laboratory periods. Elective in the course in Agriculture.

6. **Physiology of Domestic Animals I.** A study of the physiology of the sheep, ox, horse, and swine, with special reference to the problems of care, feeding and breeding, giving the physiological basis of the technical study of these subjects. The sheep is dissected to give the necessary knowledge of anatomy and the important organs of each type studied where important differences exist.

Elective in the Agricultural Course, junior year; first semester; three credits; one lecture; two laboratory periods.

7. **Physiology of Domestic Animals II.** A continuation of Course 7.

Elective in the Agricultural Course, junior year; second semester; one lecture; two laboratory periods.

8. **Embryology.** A study of the development of the chick designed particularly to make the student more proficient in microscopical methods, such as killing, fixing, imbedding, sectioning, staining, reconstruction from serial sections.

Elective in the courses in Agriculture, and Domestic Science and Art; junior or senior year; second semester; three credits; one lecture; two laboratory periods.

9. **Animal Parasites.** A course of lectures, demonstrations, and collateral reading upon the principal parasites of domestic animals.

Elective in the course in Agriculture; junior or senior year; second semester; one credit.

10. **General Entomology.** An introduction to the study of insects with special reference to economic forms. Agricultural students may give chief consideration to those species which are destructive to farm crops or which are parasitic upon domestic animals; horticultural students may consider the insects of the orchard; while Domestic Science and Art students study the life-history and habits of mosquitos, flies, cock-roaches, ants, carpet-beetles, clothes moths, and other household pests or those which prey upon the plants of the vegetable or flower garden. In all cases preventive and remedial measures are given consideration. The laboratory work consists of a preliminary study of the anatomy of the grasshopper with comparative work upon other types. Sufficient field work in collecting, and laboratory work in properly mounting and classifying insects, is provided to make the student familiar with the principal orders of insects. The course thus becomes at once an elementary course in economic entomology for those who can pursue the subject no further, and an introductory course for those who desire to specialize in this branch of science.

Elective in the courses in Agriculture and Domestic Science and Art; junior year; first semester; five credits; two lectures; three laboratory periods.

11. **Advanced Entomology I.** This course is designed for those who desire to specialize in entomology. The instruction

includes lectures and reference reading upon the biology of the principal families of insects supplemented by laboratory studies of typical life-histories. Considerable time is devoted to studying the habits of insects, particularly injurious species, in the field; to collecting, rearing, mounting and classifying them; and to becoming proficient with entomological methods and literature.

Elective in the courses in Agriculture and Domestic Science and Art; junior year; second semester; five credits; two lectures; three laboratory periods.

12. **Advanced Entomology II.** A continuation of Course 11.

Elective in the courses in Agriculture and Domestic Science and Art; senior year; first semester; five credits; two lectures; three laboratory periods.

13. **Advanced Entomology III.** A continuation of Courses 11 and 12.

Elective in the courses in Agriculture and Domestic Science and Art; senior year; second semester; five credits; two lectures; three laboratory periods.

In connection with Courses 11, 12, and 13 the student will be required to present a thesis detailing the results of a systematic study of some restricted group of insects or of the biology of some particular species or group of species.

14. **Crop Pests.** A course of lectures, laboratory and field observations upon the chief insect pests, fungous and other diseases of cultivated crops. Instruction and practical work is provided in the preparation of sprays and in the use of various types of spraying machinery, fumigation and other approved methods of reducing the losses from the various crop pests. The course is designed to furnish the student with that practical information which experience has shown is most often desired by farmers or orchardists.

Elective in the course in Agriculture; junior or senior year; first semester; three credits; two lectures; one laboratory period.

15. **Crop Pests.** A continuation of Course 14.

Elective in the course in Agriculture; junior or senior year; second semester; three credits; two lectures; one laboratory period.

16. **Beekeeping I.** A brief course in the principles of beekeeping with practical work in the apiary. Special attention will be given to the relations between beekeeping and orcharding.

Elective in the courses in Agriculture and Domestic Science and Art, first semester; one credit.

17. **Beekeeping II.** A continuation of Course 16.

Elective in the courses in Agriculture and Domestic Science and Art; second semester; one credit.

18. **Seminar I.** Senior and graduate students in Entomology and Plant Pathology. Reading, discussing and abstracting the leading articles upon Entomology and Plant Pathology as they appear in the scientific journals, horticultural press, current magazines and experiment station literature.

Senior year; first semester; one credit.

19. **Seminar II.** A continuation of Course 18.

20. **Game Breeding and Protection.** A laboratory and reading course in the study of the best methods of stocking forest tracts and their waters with game fishes, birds, and mammals; the breeding habits, propagation and protection of game; the recognition of the more important game fishes, birds, and mammals; together with a critical study of the laws of the various states relating to game.

Course in Forestry; senior year; first semester; one credit; one laboratory period.

Senior year; second semester; one credit.

Any of the above courses may be elected as a minor upon consultation with the instructor. Students electing major work for a degree in this department will be required to take Courses 1, 2, and 3 and to carry an equivalent of five credits throughout the Junior and Senior years. Graduate courses leading to the Master's degree may be arranged for upon consultation with the head of the department and the Committee on Advanced Degrees.

CHEMISTRY.

Professor Fulton.
Professor Bradley.
Mr. Tartar.
Mr. Harding.
Mr. Brodie.

The beginners' courses, Chemistry 1, 2, and 3, consists essentially of the proof of some of the well known chemical laws, such as the law of conservation of matter, the law of definite proportions and of multiple proportions, the Law of Boyle, and the Law of Charles. The student attains skill in the manipulation of apparatus, and in the management of equipment in general. From this elementary work he proceeds to qualitative analysis, in the study of which he is taught to separate and identify the different elements composing the mass, and, in the case of metals, to learn of their properties, their uses, the different methods of obtaining them from their ores, and the combinations in which they occur in nature.

If he has shown suitable proficiency, he advances to quantitative analysis, which is the determination of the amounts of the ingredients. He is taught both methods of analysis, volumetric, or the method by solution, and the gravimetric, or the method by precipitation and weighing. On completing these courses, the student is fairly well prepared to take up advanced work in any particular line. He can proceed in agricultural chemistry, which treats of the analysis of soils, manures, cattle foods, dairy products, etc., or he can take up the subject from the inorganic side in the analysis of minerals, fuels, oils, gas, etc., or he can view it from the pharmacist's standpoint, in analyzing drugs. And finally, as a graduate student, he may proceed intelligently along original lines of study and research.

1. **General Chemistry, Inorganic.** This course deals with the general principles of the science, and extends through the division known as the non-metals.

All Degree Courses, except Domestic Science and Art;

freshman year; first semester; four credits; two lectures and recitations; two laboratory periods.

2. **General Chemistry I.** This course is arranged especially for the students of the Domestic Science and Art departments, and extends through the first semester. The same time is required as in Course 1.

3. **General Chemistry II.** Descriptive. This is a continuation of Course 1, and extends through the second semester. The same time is required as in Course 1.

4. **Qualitative Analysis.** This course consists largely of laboratory practice in the ordinary processes of separating and identifying ions.

Sophomore year; first semester; four credits; one recitation; three laboratory periods.

5. **Elementary Quantitative Analysis.** This course consists of a consideration of the fundamental laws of chemistry with respect to solutions and precipitates. Much stress is laid on stoichiometrical relations.

It is designed especially for Pharmacy and Domestic Science students, but may be found advantageous for any others desiring to extend their knowledge in chemistry.

Second semester; four credits; one recitation; three laboratory periods.

6. **Quantitative Analysis.** This is a course in gravimetric and volumetric analysis, designed principally for Mining students. It consists of analysis of limestones, iron, lead and zinc ores, and as much of other work as time will permit.

Sophomore year; second semester; three credits; one recitation; three laboratory periods. Must be preceded by Courses 1 and 2.

7. **Organic Chemistry.** The work of this course consists of the study of the more typical and simple organic compounds, and is designed for Pharmacy, Domestic Science and Art, and such students of Agriculture as desire to take up Physiological Chemistry, and Veterinary Science.

Pharmacy, sophomore year; and Domestic Science, freshman year; second semester; four credits; two recitations; two laboratory periods.

8. **Agricultural Chemistry.** A course consisting of lectures and laboratory work dealing with the more important phases of chemistry as related to agriculture. After a study of the general principles of quantitative analysis these are applied in the determination of the more important constituents of soils, fertilizers and feeding stuffs. In this course, as well as in Course 10, the work is adapted, as far as possible, to the needs of the individual student.

Junior year; first semester; four credits.

Prerequisites: Chemistry 1 and 2.

9. A minor elective course, consisting of the lectures only as given in Course 8.

Junior year; first semester; two credits.

10. A continuation of Course 8, in which the chemistry of foods, dairy products, waters, and spraying materials is taken up as fully as time permits. In the lecture work of this course special attention is paid to chemistry of nutrition, plant and animal life.

Junior year; second semester; four credits.

11. A minor elective course, consisting of the lectures only as given in Course 8.

Junior year; second semester; two credits.

12. **Chemistry of Foods.** This course includes the analysis of the more important food products, such as flour and breakfast foods, and also such materials as alcoholic beverages, condiments, baking powders, sugars, and syrups. Methods for detecting the common adulterations are considered at length.

Domestic Science and Art; sophomore year; second semester; four credits; one lecture; three laboratory periods.

Prerequisites: 2, 7, and 5.

13. **Pharmaceutical Analysis.** This course consists of the separation, identification, and determination of the active principles of alkaloidal drugs and galenical preparations, and is designed for students in the Pharmacy course and those who intend to study medicine.

Junior year; first semester; two credits; four laboratory periods.

14. **Urinalysis and Toxicology.** This course is for Pharmacy students and consists of the chemical examination of urine, and the methods of identifying the alkaloidal and mineral poisons.

Elective in the Pharmacy course; senior year; second semester; two credits; four laboratory periods.

15. **Engineering Chemistry.** This course is designed particularly for students in Mechanical and Electrical Engineering. It consists of the analysis of coal, oil, and gas, and of their calorific powers; also the technical analysis of flue gases.

Junior year; second semester; two credits; two laboratory periods.

Prerequisites: Course 5 or 6.

16. **Stoichiometry.** A study in chemical arithmetic for students in analytical chemistry.

Junior year; second semester; two credits; two lectures and recitations.

17. **Electro Chemistry.** This course is for advanced Mining Engineering students and consists of the application of the electric current to solutions of the different metals in metallurgical analysis.

Elective in the course in Mining Engineering; senior year; second semester; three credits; one recitation; two laboratory periods.

Prerequisite: Course 6.

18. **Mineral Analysis.** This course may be taken by anyone desiring advanced work in Quantitative Analysis. It consists of the theoretical and practical study of the most approved methods of determining the composition of complex compounds. Time to be arranged.

Elective; first or second semester; five credits; two lectures; three laboratory periods.

19. **Economic Chemistry.** A practical study of the chemical processes involved in the production of various commodities, including iron, steel, copper, and other metals; soaps, dyes, paints, fertilizers and the like. This course is intended to familiarize the student with the application of chemistry to modern industry.

Elective; junior year; both semesters; three credits; two lectures; one laboratory period.

BACTERIOLOGY.

Professor Pernot.
Mr. DeHaven.

The science of bacteriology has reached a stage in its development where it is within the reach of all students taking a collegiate course. A knowledge of the subject has heretofore been confined principally to the medical profession; but since its relation to agriculture and the domestic arts has become better understood, the teaching of the subject has been added to the curriculum of higher institutions of learning.

Bacteria play such an important role in the economy of nature, and are so closely associated with our everyday lives, both in health and disease, that it becomes essential for a modern student to acquire a knowledge of what bacteria are and what they do. This College has a well equipped bacteriological laboratory for the investigation and study of bacteria in all their relations to the industries.

1. **Elementary Bacteriology** consists of a series of lectures and laboratory demonstrations to familiarize the students with the underlying principles of bacteriology as applied to everyday life.

The course in Agriculture; sophomore year; first semester; one credit; one lecture.

2. **Major Bacteriology.** Beginning with the first semester of the junior year, a student may take bacteriology through the two semesters of that year, then continue advanced work through the two semesters of the senior year. The subject is first studied theoretically to prepare the student for subsequent work.

Elective; junior year; first semester; five credits; five recitations.

3. **Laboratory Practice.** A continuation of Course 2. The laboratory work begins by familiarizing the student with all bacteriological apparatus and its use, then gradually advancing into making culture media; filling and plugging tubes; steriliz-

ing; plate culture work; study of colonies; planting on various media; study of morphology and classification.

Elective; junior year; second semester; five credits; five laboratory periods.

4. **General Bacteriology.** This is the regular, required course in Bacteriology for Pharmacy students, fitting them to carry on any ordinary bacteriological work. The course is a series of recitations and lectures covering the subject in a theoretical way.

The course in Pharmacy; senior year; first semester; three credits; three recitations.

5. **Practical Bacteriology** is a continuation of general bacteriology. It is a course in practical laboratory work in making culture media; plate cultures; a study of colonies; planting on various media; quantitative analysis; classification; examination of pathological specimens; examination of sputum.

The course in Pharmacy; senior year; second semester; three credits; one recitation; three laboratory periods.

6. **Sanitary Bacteriology.** This course deals with the sanitation of the home; water supply; sewers and drains; ventilation and hygiene of the sick room.

Elective; senior year; first semester; two credits; two recitations.

7. **Home Bacteriology.** This course relates to the study of yeasts; fermentation; principles of canning; care of milk and food; utilization of waste products; vinegar making; preservation of meats.

Elective; senior year; second semester; two credits; two recitations.

8. **Dairy Bacteriology.** This is the study of bacteria in their relation to milk and milk products. The course considers the source of invasion; reaction upon milk; control of growth; usefulness of certain varieties.

Elective; senior year; first semester; two credits; two recitations.

9. **Economic Bacteriology.** This course treats of the economic use of pure cultures of micro-organisms in butter-making; methods of perpetuating pure cultures for starters; controlling

flavor of cheese by the use of pure cultures of selected organisms; enzymes in curing cheese; preserving cheese and butter; laboratory demonstrations in detecting pathogenic bacteria in milk, impure milk, and milk from diseased cows.

Elective; senior year; second semester; two credits; two recitations.

10. **Soil Bacteriology.** A course of lectures and recitations in the general subject relating to micro-organisms of the soil, nitrifying germs of the legumes, how cultivated and used in inoculating, care of the organisms in the soil, value of organisms in manure.

Elective; senior year; first semester; two credits; two recitations.

11. **Pathological Bacteriology.** This is a study of pathogenic bacteria infecting domestic animals. The course includes a consideration of laboratory demonstrations with guinea pigs inoculated with infectious organisms; symptoms and lesions formed; infection and contagion; principles of immunity.

Elective; senior year; second semester; two credits; two laboratory periods.

12. **Technical Bacteriology.** A course of lectures and laboratory work in pathogenic germ diseases of live stock and poultry. Topics for consideration are a study of vaccines; their manufacture and use; nitrifying bacteria of leguminous plants; bacteria in the soil; bacteriological analysis of water.

Elective; senior year; first semester; five credits; one lecture; four laboratory periods.

13. **Advanced Bacteriology.** This course includes advanced work along the lines of original investigation; pathological bacteriology; experimental bacteriology; sanitation; immunity and prevention of disease; use and application of antiseptics; practical disinfection.

Elective; senior year; second semester; one lecture; four laboratory periods.

14. **Thesis Bacteriology.** A thesis may be selected in this subject, beginning with the first semester, junior year, major bacteriology, and continuing through four semesters.

Elective; junior and senior years; two credits for each semester.

All theses must be the result of original investigations.

The major course equals a course in bacteriology in any of the medical schools, and is recommended to those students who contemplate studying medicine, dentistry, or professional nursing.

BOTANY.

Professor Lake.
Miss Gilkey.

The instruction in Botany is designed primarily to equip the student with a practical working knowledge of plants as to their structure, functions, processes, life work, and economic properties. While the several courses are arranged to meet the particular needs of those who contemplate the care of garden, orchard, field and forest crops, they are sufficiently plastic to meet the requirements of those who desire to pursue teaching or research in this subject. The secondary courses are well adapted for the instruction of those teachers who expect to conduct nature study classes in the public schools. The several courses of instruction cover the subject from the simplest phases of plant relationship to advanced research. New equipment makes it possible for the department to conduct original work in the various plant processes, as photosynthesis, respiration, transpiration and growth. By the payment of nominal fees students have the use of individual laboratory sets, including dissecting and compound microscopes; chemical reagents; sectioning material, mounting apparatus, staining, and preserving media. Thus every student is insured the opportunity to do individual work, a consideration of first importance to the earnest, ambitious student in any line of work.

The courses throughout contemplate a close association with plants in their various home surroundings, as garden, field, and forest. The plant is studied as a living organism, having a definite work to perform, and possessing for this purpose a more or less complex structure most delicately adjusted. The student through this close contact, finds the plant to be a living, self-propelling machine of marvelous intricacy, doing a world's work of prime necessity. Incidentally the work trains the eye to discriminate keenly, the hand to record accurately through sketches and illustrations with both pen and pencil, and the mind to discern readily the great plan underlying plant development in the progress of world building.

Text and reference books are used chiefly for the purpose of furnishing outlines of work, suggestions, or collateral information. The plant itself is the real source of the student's knowledge of vegetable life, its functions and processes.

To the student who is well grounded in the elements of plant structure and the principles of vegetable processes, is assigned the task of answering by means of laboratory and field experiments various problems pertaining to plant nutrition, growth, fertilization, and other functional processes. In short, the courses not only aim to thoroughly ground the student in the principles underlying plant life, but at the same time to give him such a training as will enable him to grasp more firmly the great world problems of today, since the struggle for existence on the part of plants and their gradual evolution, typify the movements of human races and nations in all ages.

A. **The Plant Cell.** A laboratory course in the study of simple plant structures, as the cell, its form, structure, contents. Simple plant and cell functionings will be given considerable attention.

The secondary course in Domestic Science and Art; second year; first semester; two credits; two laboratory periods.

B. **Ecology.** That study of plants which directs our attention to their life relations. Plants hold definite relations to a multitude of factors outside of themselves, as light, heat, moisture, soil, and wind. In this phase of the study of plants many of the most important problems of plant life are brought up for consideration. Not only are plants studied with reference to their relationships to each other, but also with reference to the animal life that surrounds them.

The secondary courses in Agriculture, Forestry, Commerce, and Domestic Science and Art; first or second year; second semester; two credits; two recitations or more.

1. **Morphology of Higher Plants.** This course embraces a study of the higher plants as to gross structure and its bearing upon the simpler physiological processes, as germination, growth, fructification, root absorption, circulation of sap, manufacture of food, pollination, and fertilization. The instruction is chiefly by means of laboratory exercises. The student dissects plants, their various organs, as roots, stems, leaves, blossoms, fruits, and special parts, as tubers, rhizomes, and bulbs, and performs simple experiments in germination, growth, sap pressure, and various other of the primary plant processes.

The courses in Agriculture, and Domestic Science and Art; second or freshman year; second semester; three credits; one recitation; two laboratory periods.

Prerequisite: Drawing A.

2. **Special Morphology.** A course arranged for the student in Pharmacy with special reference to elementary taxonomy. The work is chiefly gross anatomy of flowering plants and the analysis of members of a few of the more prominent families.

The courses in Forestry and Pharmacy; freshman year; second semester; three or four credits; three or four laboratory periods.

Prerequisite: Drawing A.

3. **Morphology of the Lower Plants.** The aim of this course is to give the student a general knowledge of the structure of ferns, mosses, lichens, fungi, and algae. The laboratory exercises are supplemented with lectures covering the theory of development among these so-called lower plants. This course is particularly designed to precede Courses 3, 4, and 8.

The course in Forestry; sophomore year; second semester; two credits; two laboratory periods.

Prerequisite: Drawing A.

4. **Plant Anatomy.** This course aims to present the fundamental principles underlying plant physiology as determined by the structures of the plant itself, particularly by its various

tissues. The plant is surrounded by a complex environment and to meet the requirements of a successful organization it has been compelled to develop special tissues. A study of these gives the student a clear insight into the problems that plants have to meet and how they have solved them.

The courses in Agriculture and Forestry; sophomore year; first semester; three credits; one recitation; two laboratory periods.

5. **Histology.** A course embracing the elements of the technique of microscopy as applied to the study of the minute structure of plants and plant products with special reference to the needs of pharmacists. Particular attention is given to a consideration of the structure of the vegetable cell, cell contents, and tissues. Preliminary studies of poisonous and medicinal plants of the local flora are made with a view to later advanced work upon the micro-chemistry of foods and drugs of vegetable origin, their purity and adulteration.

The course in Pharmacy; sophomore year; first semester; three credits; three laboratory periods.

6. **Taxonomy.** This course aims to provide the student with a working knowledge of the various families of plants characteristic of the coast region. Laboratory and field exercises constitute the chief part of the work. The field work includes the collecting, curing, mounting, and preserving of specimens. Lectures will consider distribution, poisonous, medicinal, and general economic plants.

Elective; second semester; four credits; three laboratory periods; one lecture.

Prerequisite: Course 2.

7. **Mycology.** This course considers the lower plants from the standpoint of classification with especial reference to future work in plant pathology. The field work consists in making generous collections and forming herbaria of algae, fungi, lichens, liverworts, mosses, and ferns, together with a study of the environments of these plants. The laboratory work includes methods and technique in the study of detail structure, supplemented with collateral reading.

The course in Forestry; junior year; first semester; two credits; two laboratory periods.

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ERRATA—

In addition to the high schools given on page 57 of the catalogue, the following high schools are also accredited:

Cove
Creswell
Drain
Fossil
Gresham (District 4)
Heppner
Hood River (District 2)
Hood River (District 3)
Ione
Jefferson
Junction
Lafayette
Muddy Creek
Myrtle Point
North Powder
Nyssa
Ontario
Oregon City
Parkplace
Roseburg
Sheridan
St. Helens
St. Johns
Sumpter
Toledo

Persons who have completed the first and second years of a three-year or a four-year high school course will be admitted to the Freshman class. Applicants who have not completed Plane Geometry and Drawing will be given an opportunity to make up such deficiency during their Freshman year.

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generous collections and forming herbaria of algae, fungi, lichens, liverworts, mosses, and ferns, together with a study of the environments of these plants. The laboratory work includes methods and technique in the study of detail structure, supplemented with collateral reading.

The course in Forestry; junior year; first semester; two credits; two laboratory periods.

8. **Physiology.** This course is designed to fit the student to take up the subjects of pathology and plant breeding, and to this end considers in detail the metabolic processes of the plant. The laboratory exercises include determinations in respiration, assimilation, translocation, absorption, transpiration, digestion, photosynthesis, growth, tone, stimulation, and sensation. The text discussions cover the most recent views relative to the various plant processes.

The course in Forestry; sophomore year; second semester; two credits; two laboratory periods.

9. **Phyto-geography.** A course of lectures and collateral reading, covering the subject of plant geography, as to regions, zones, and areas, and the causes and conditions conducive to such distribution and formations.

Elective; first semester; two credits; two lectures and recitations.

Prerequisite: Course 1.

10. **Plant Products.** Economic plants and their various preparations and uses. History, development, and distribution of the plants that furnish the world with its chief supply of material for food, shelter, clothing, fuel, medicine, and the arts.

Elective; second semester; three credits; three lectures and recitations.

11. **Plant Evolution.** This course traces the development of plants through the various periods of their existence as plastic organisms yielding to the world changes ever in progress; as factors in the world building processes; and as organisms from which may be drawn lessons as to the significance of the increased complexity in world activities.

Elective; first semester; hours and credits subject to arrangement.

PHYSICS.

Assistant Professor Weniger.
Mr. Shepard.

A. **Elementary Physics I.** A high school course in physics adapted to students just beginning geometry.

The secondary course in Mechanic Arts; second year; first semester; two recitations and one laboratory period per week; three credits.

B. **Elementary Physics II.** A continuation of Course A.

The secondary course in Mechanic Arts; second year; second semester; three credits.

1. **Physics I.** A course for beginners, somewhat more advanced than Course A, but omitting much of the detail of Course 3. The laboratory exercises in this course will be illustrative rather than quantitative in character.

The course in Commerce; sophomore year; first semester; two recitations and one laboratory period per week; three credits. (Transition Course only.)

2. **Physics II.** A continuation of Course 1.

The course in Commerce; sophomore year; second semester; three credits. (Transition Course only.)

3. **General Physics I.** This course is designed for students who have no previous knowledge of physics, but it is in every way more thorough than either Course A or Course 1. In the laboratory, special emphasis will be given to the accuracy of the measurements involved and to the plotting and interpretation of the data.

The courses in Agriculture, Commerce, Forestry, Pharmacy, and all Engineering courses; sophomore year; first semester; two recitations and two laboratory periods per week; four credits.

(Transition Course, as above except that trigonometry may be taken at the same time; required of students in Agriculture in the junior instead of the sophomore year. Not required of students in Commerce.)

4. **General Physics II.** A continuation of Course 3.

Second semester; four credits.

5. **Electricity and Magnetism.** An advanced course, taking up the theory of electrical measuring instruments, etc., with suitable practice in the laboratory.

Elective; credit to depend on work done.

6. **Heat and Light.** An advanced course, taking up the phenomena of heat and light in detail, including recent discoveries.

Elective; credit to depend on work done.

MATHEMATICS.

Professor Johnson.
Assistant Professor Tartar.
Mr. Beard.
Mr. Beaty.
Mr. ———

A. **Algebra I.** The work of the course includes a drill in the fundamental operations, use of parentheses, special rules of multiplication and division, factoring, highest common factor, lowest common multiple, and fractions.

The secondary courses; first year; first semester; five credits; five recitations.

B. **Algebra II.** The topics studied include solution of fractional and literal equations, problems involving linear equations, simultaneous linear equations involving two or more unknown numbers, problems involving simultaneous linear equations, graphical representation, inequalities, involution, evolution, theory of exponents, radical expressions, and imaginary numbers.

The secondary courses; first year; second semester; five credits; five recitations.

C. **Algebra III.** After a short review of the topics which precede quadratic equations, the following subjects are carefully treated: Quadratic equations, problems involving quadratic equations with one unknown number, equations in the quadratic form, theory of quadratic equations, factoring of quadratic expressions, solution of quadratic equations by factoring, graphical representation of quadratic expressions with one unknown number, simultaneous quadratic equations, problems involving simultaneous quadratic equations with two unknown numbers, and graphical representation of simultaneous quadratic equations.

The secondary courses; second year; alternates with Course D, first semester, and first five weeks of second semester; three and one-third credits.

D. **Plane Geometry.** The work includes all that is found in Shutts' Plane and Solid Geometry. The constant aim is to develop in the student the power of logical reasoning, and of clearness and accuracy of expression. To this end many original exercises are studied, and at all times demonstrations and proofs are freely discussed in the class room.

The secondary courses; second year.

Alternates with Course C, first semester, and first five weeks of second semester; three and one-third credits.

E. **Plane and Solid Geometry.** This is a continuation of Course C.

The second year of all secondary courses; last twelve weeks of second semester; three and one-third credits; five recitations.

I. **Plane Trigonometry.** This course includes functions of acute angles, right triangles, functions of any angle, relations between functions, inverse functions, trigonometric equations, and oblique triangles. Considerable time is devoted to the deduction of trigonometric formulae, study of trigonometric identities, and the solution of practical problems.

All degree courses except Domestic Science and Art; freshman year.

All Engineering courses—first three-fifths first semester; five recitations. Agriculture and Pharmacy—first semester; three recitations. Commerce — second semester; three recitations; three credits.

2. **College Algebra I.** After a brief review of radical expressions, theory of indices, and quadratic equations, the following subjects are studied: Graphical representation, mathematical induction, binomial theorem, progressions, permutations and combinations, and complex numbers.

All Engineering courses; freshman year; last two-fifths of first semester and first five weeks of second semester.

Three and one-half credits; five recitations.

3. **College Algebra II.** This course is a continuation of Course 2 and consists of a treatment of the theory of equations, partial fractions, logarithms, continued fractions, and scales of notation. A short time at the end of the semester may be devoted to the study of analytic geometry.

All Engineering courses; freshman year; last twelve weeks of second semester; three and one-half credits; five recitations.

4. **Plane Analytic Geometry.** The topics studied are the point, the straight line, polar coordinates, transformation of coordinates, the circle, conic sections, tangents, diameter, poles and polars, discussions of general equations of the second degree, problems in loci, and higher plane curves.

All Engineering courses; sophomore year; first three-fifths of first semester; three and one-third credits; five recitations.

5. **Differential Calculus.** Among the subjects presented are: differentiation and applications, evaluation of indeterminate forms, expansion of functions, Taylor's and Maclaurin's theorems, maxima and minima, points of inflection, curvature, change of independent variable, functions of two or more variables, asymptotes, curve tracing, etc.

All Engineering courses; sophomore year; last two-fifths of first semester and first five weeks of second semester; three and one-third credits; five recitations.

6. **Integral Calculus.** Among the topics considered are: direct integration, definite integrals and applications; integration by parts, integration of trigonometric forms, etc.; applications to finding the lengths and areas of curves, surfaces, and volumes of solids of revolution, etc.; double and triple integration and applications. In this course, as in Course 8, great

stress is laid upon practical applications, and a large number of practical problems are solved.

All Engineering courses; sophomore year; last twelve weeks of second semester; three and one-third credits; five recitations.

7. **Spherical Trigonometry.** The course in Civil Engineering; freshman year; first semester; one credit; one recitation.

8. **Commercial Arithmetic.** A thorough review of all the essential operations. Special stress is laid on short methods; daily drills in rapid calculation; construction of labor-saving tables; computation of estimates, partnership settlements, average, etc.

The course in Commerce; freshman year; first semester; three credits; five recitations.

ENGLISH LANGUAGE AND LITERATURE.

Professor Berchtold.
Assistant Professor Callahan.
Mr. Baldwin.
Mr. Hetzel.
Miss Williams.
Mr. Mathews.
Mrs. McElfresh.

The objective points toward which all efforts in the study of English tend are: The study of English as a means of communication between man and man; the study of English as literature; and the study of English as language.

A cursory glance at this division might suggest the first part as the all important point, i. e., the study of English in its full scope as a means of expression with the pen and the lips. Experience has taught, however, that students of English who wish to become well grounded in the knowledge and use of their mother-tongue can not safely neglect any one of these points. For he who studies the art of composition will be greatly helped in his work if he knows the exact meaning of the words and is familiar with the classics of his native tongue.

Knowledge of the principles of the art of composition as applied by the best writers will assist the student to avoid his own crudities and will enable him to communicate what he has to say in a better form than he would otherwise employ. By the shortcomings of others he should learn what to guard against, and by their achievements what to seek in his own compositions, be these simple daily or weekly letters to friends or parents, or be they themes, essays, orations, dissertations or contributions to current thought.

What his textbook helps him to do consciously, familiarity with superior writers should help him to do unconsciously; for we may get good from a master of English by unconscious absorption, just as we acquire good manners by associating with gentlemen and ladies. No mind can fail to be stimulated by contact with greater minds, whether living or dead. Their pages feed the powers of thought and strengthen the power of expression, thus enabling the student to think, to talk and to write to more purpose.

The college graduate of today, when taking his place in the arena of the world, is expected to have, and usually has, thoughts and opinions of his own. To render these ideas of use to his fellow men, and thus to himself, he must be able to give them adequate expression. This the study of Grammar, Rhetoric, Forensics, Oratory, and Literature will help him to do, as all of these branches call for close and accurate observation, correct inference, and sharp discrimination.

A. **Advanced Grammar I.** This course is designed to make the expression of ideas a pleasure to the student. The work consists of spelling, writing, and analysis and synthesis of simple grammatical constructions. Written exercises prepared under rules of form are required constantly, to obtain flexibility and confidence in expression. There is daily drill in sentence analysis and construction to give the student a clear idea of the principal parts of sentences. Punctuation and capitalization form a part of the daily drill work. Every expression, while discussing the recitation work, must be complete. As far as possible the weak points in the individual's language will be corrected. Practice in theme correction is given to enable the student to see his own mistakes more readily.

The secondary courses; first year; first semester; three credits; three recitations a week.

"Elementary English Composition," by Scott and Denny, to Chapter III; "English Grammar," by Whitney and Lockwood, to Chapter VI; and "Kimball's Business Speller" to Lesson 75 will be the work covered. One composition will be required each month.

B. **Advanced Grammar II.** This course will be a continuation of Course A, completing the books named and spending more time on composition work. Compositions range from 250 words to 1,000 words.

The secondary courses; first year; second semester; three credits; three recitations a week.

C. **Classics I.** The aim of this elementary course is to cultivate in the student a taste for reading; to assist him in the interpretation of the simpler classics of our literature; and to encourage him to express his own thoughts clearly and without embarrassment. Masterpieces of prose and poetry are studied and some collateral reading is required.

The secondary courses; first year; first semester; two credits; two recitations a week.

The Call of the Wild, Jack London.
The Man Without a Country, Edward Everett Hale.
Snowbound, Whittier.

D. **Classics II.** A continuation of Classics I.

The secondary courses; first year; second semester; two credits; two recitations a week.

The Pilgrim's Progress, Part I, Bunyan.
The Merchant of Venice, Shakespeare.
The Vision of Sir Launfal, Lowell.

E. **Rhetoric and Composition I.** Open to students who have had courses A, B, C, D, or their equivalent.

A review of the principles of grammar; exercises in syntactical construction; principles governing the structure of the whole composition; analysis and outlines of specimens of easy classic prose and poetry, with a view to illustrating theme structure; writing of short compositions in class on "read up" matter; and a preparation of a theme each week, in the narrative or descriptive forms, with attention to sentence structure, spelling, punctuation, and paragraph arrangement.

The secondary courses; second year; three recitations a week throughout the first semester; three credits.

Text book: Manual of Composition and Rhetoric (Gardiner, Kittredge, and Arnold).

F. **Rhetoric and Composition II.** A continuation of Course E. Intensive study of the Paragraph, the Sentence, and the Word; study of synonyms; paragraph writing, with a view to applying the principles governing the development of the topic statement; elementary themes, weekly, in the expository and argumentative forms.

The secondary courses; second year; three recitations a week throughout the second semester; three credits.

G. **Classics III.** Principles of literary criticism; interpretative study of literary classics; analysis and rendering. Eliot's Silas Marner, Irving's Sketch Book, Scott's The Lady of the Lake, Coleridge's Ancient Mariner constitute the list of classics from which selections for study will be made.

All secondary courses; two recitations a week throughout the first semester; two credits.

H. **Classics IV.** Continuation of the methods of work employed in the first semester. A selection of three classics will be made for study from a list consisting of Shakespeare's As You Like It, Addison's De Coverly Papers, Dickens' Tale of Two Cities, and Macaulay's Lays of Ancient Rome.

All degree courses; two recitations a week throughout the second semester; two credits.

1. **Rhetoric.** Study of the elements and principles involved in effective discourse. The study of words; the sentence; the paragraph; descriptive, narrative, and expository forms of composition with written exercises in each. Careful attention to making plans and outlines. Descriptions and narrations written on demand in class under limit. Personal conferences with the instructor on all written work are an important part of the course.

All degree courses; freshman year; first semester; three credits; three recitations.

Prerequisites: English A, B, C, D, E, F, G, H.

Text book: A College Manual of Rhetoric (Baldwin).

2. **Advanced Rhetoric.** Study and practice in expository writing in class; drill in careful, orderly arrangement of material; outlines of plans, introductions, conclusions; study of effective paragraphings; importance of color and action; illustration and exemplification; bi-weekly and monthly themes with personal conferences.

All degree courses; freshman year; second semester; three credits; three recitations.

Prerequisites; English 1, 3.

3. **Advanced Classics and Reading I.** Principles of literary criticism; advanced interpretative study of literary classics; analysis and rendering.

All degree courses; freshman year; first semester; two credits; two recitations.

Hamlet, The Tempest, Carlyle's Essay on Burns, Macaulay's Essay on Addison.

4. **Advanced Classics and Reading II.** A continuation of Course 3.

All degree courses; freshman year; second semester; two credits; two recitations.

Macbeth, Lear, Macaulay's Essay on Johnson, Emerson's Essays (selected).

5. **The Composition of Public Addresses.** This course deals with the composition of the most important kinds of public addresses, including the argument, the eulogy, the commemorative address, and other forms. The work consists of lectures; a study of text books; analyses of masterpieces; practice in the composition of the various forms; frequent class room exercises; five long themes during the year, and personal consultation.

All degree courses; junior year; first semester; one credit; one recitation.

6. **Argumentative Themes.** This course is devoted principally to training in analysis; brief drawing; evidence; refuta-

tion; study of the principles of conviction; persuasion; and rhetorical presentation. This course is fundamental in public speaking, and is recommended to students who desire to become proficient speakers.

All degree courses; junior year; second semester; one credit; one recitation.

7. **Oratorical Themes and Delivery.** This course is intended as special preparation for those who wish to enter oratorical work. The work consists of lectures on the theory of oratory; the preparation of original orations; class room exercises; personal conferences and criticism. At least three orations are required during the first semester.

All degree courses; senior year; first semester; two credits; two recitations.

8. **Expression and Style.** The work of this course is devoted principally to the study of the principles of oral expression for the cultivation of a natural and direct style. Prepares students for participation in college oratory and debating.

All degree courses; senior year; second semester; two credits; two recitations.

9. **Practical Public Speaking.** Daily practice in the presentation of the various forms of public address, voice training, study of gesture, bearing, and the elements of ease, grace, and force in presentation. Practice in rapid preparation of speeches on the topics of the day, and in the impromptu delivery of the same. Designed for those who wish some general training in public speaking.

Elective; throughout the year; five credits; five recitations.

10. **Exposition and Argumentation.** A continuation of Course 6, with principal emphasis on Argument. Reading and analysis of forensic masterpieces preparatory to practical work in debate in junior and senior years. Drill in principles of definition, restriction and exclusion; study of value of evidence and proof as support of a proposition; recognition of the difference between assertion and argument; the relation of main and subordinate support to a proposition; difference between inductive and deductive proof; exposition continued.

The course in Domestic Science and Art; sophomore year;

and the course in Agriculture; senior year; first semester; three credits; three recitations.

Lectures on essays and orations. Emerson's Essays, Burke's On Conciliation with America.

11. **The Essay.** This is perhaps the most instructive, helpful, and profitable of the forms of discourse. A careful study of the works of the masters of this difficult form: Emerson, Lowell, Stedman, DeQuincey, Macaulay, Matthew Arnold, and Ruskin; study of the paragraph; occasional written exercises, with the essays read as guides, to acquire correctness and facility of expression.

The courses in Agriculture and Domestic Science and Art; sophomore and senior years; second semester, three credits; three recitations.

12. **American Literature I.** A study of the leading periods and principal writers of our country with particular emphasis on what is sometimes called the First National Period, including such authors as Irving, Cooper, Bryant, Poe, Hawthorne, Longfellow, and Holmes; also prominent writers of the present day; lectures; class room study and reading; compositions.

The course in Domestic Science and Art; elective in the other courses; senior year; first semester; two recitations; two credits.

13. **American Literature II.** A continuation of Course I. The metropolitan writers; present schools and tendencies; literature in the West; lectures; class room study and reading; compositions.

The course in Domestic Science and Art; elective in the others; second semester; two recitations; two credits.

14. **Business English.** Besides giving a thorough training in commercial correspondence, the course aims to ground the student in the vocabulary, forms, and usages peculiar to business and administrative pursuits. Incidental writing, summaries, advertising, preparation of copy and proofreading receive much attention.

The standards of commercial English are each year advancing; and familiarity with proper usage of recognized forms is of paramount importance to those who are looking forward to a business career.

The Commercial Course; freshman and secondary years; first semester; three recitations; three credits.

PHYSIOGRAPHY.

1. **Physiography.** This course includes a study of the general principles of Physiography, including earth movements, general elevation and depression of land areas, rock disintegration, origin and nature of drainage systems, life history of rivers, and origin of surface features and causes which have produced them. It also includes a study of meteorology and climatology.

PSYCHOLOGY.

1. **General Psychology.** A study by lectures, recitations, and demonstrations of the general facts and laws of mental activity. The subject is approached from its physiological aspect. Special attention is given to habit and its relation to character formation.

Students who have not taken Zoology IV and V will be expected to find extra time for demonstrations of the structure of the nervous system and the sense organs.

Elective; junior and senior years; second semester; three credits; three recitations.

MODERN LANGUAGES.

Professor Taillandier.

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The instruction in Modern Languages covers a three-year course in French and German and a two-year course in Spanish.

Two years of Modern Languages (French, German or Spanish) are required in all degree courses except Mining and Civil Engineering, in which courses this subject is an elective.

The first two years in either German or French are intended to prepare the student for the reading of scientific texts, to enable him to translate understandingly and with ease any scientific work which he may wish to read in the execution of his profession; the third year is entirely devoted to the reading of such texts.

In Spanish the aim is to teach students the use of the living language, not merely to read, but to understand and speak it, with a view of possible work in Mexico, Cuba, or the Philippines. Considerable attention is given to conversation and matters of business. Commercial correspondence and other useful topics are introduced during the second year.

The following courses are offered:

1. **French I.** Chardenal's Complete French Course; drill in grammar; exercises in easy prose composition. Aldrich & Foster's French Reader, selected prose works by modern writers, such as Labiche, Enault, Daudet, Bazin.

Sophomore year; first semester; four credits; four recitations.

2. **French II.** A continuation of Course I.

Sophomore year; second semester; four credits; four recitations.

Prerequisite: Modern Language 1.

3. **French III.** Buell's French Daily Life; constant review of the grammar, composition and readings of modern French writers, such as Scribe, Dumas, Sand, Merimee, Balzac, Hugo.

Junior year; first semester; four credits; four recitations.

Prerequisites: Modern Languages 1 and 2.

4. **French IV.** A continuation of Course 3.

Junior year; second semester; four credits; four recitations.

Prerequisites: Modern Language 1, 2 and 3.

5. **French V.** Reading of scientific texts; Davies' Elementary Scientific French; Bowen's Scientific French Reader; Lucquiens' Popular Science.

Senior year; first semester; four credits; four recitations.

Prerequisites: Modern Languages 1, 2, 3, and 4.

6. **French VI.** A continuation of Course 5.

Senior year; second semester; four credits; four recitations.

Prerequisites: Modern Languages 1, 2, 3, 4, and 5.

7. **German I.** A short outline of the complete grammar, including irregular verbs; translation of easy texts and exercise in easy prose compositions. Collar-Eysenbach German Grammar, Mueller and Wenckebach's Glueck Auf, Huss' German Reader.

Sophomore year; first semester; four credits; four recitations.

8. **German II.** A continuation of Course 7.

Sophomore year; second semester; four credits; four recitations.

Prerequisite: Modern Languages 7.

9. **German III.** Constant review of the grammar and syntax; exercises in composition and the requirement of a larger vocabulary; Bronson's Colloquial German, Mosher's Willkommen in Deutschland, Kron's German Daily Life, and selected prose works of modern writers.

Junior year; first semester; four credits; four recitations.

Prerequisites: Modern Languages 7 and 8.

10. **German IV.** A continuation of Course 9.

Junior year; second semester; four credits; four recitations.

Prerequisites: Modern Languages 7, 8 and 9.

11. **German V.** Reading of scientific texts; Lassar-Cohn Die Chemie im Taglichen Leben; Walter's Meereskunde; Day and Brandt's Scientific Reader.

Senior year; first semester; four credits; four recitations.

Prerequisites: Modern Languages 7, 8, 9, and 10.

12. **German VI.** A continuation of Course 11.

Senior year; second semester; four credits; four recitations.

Prerequisites: Modern Languages 7, 8, 9, 10, and 11.

13. **Spanish I.** Loiseaux's Elementary Spanish Grammar; Worman's First and Second Spanish Books; Loiseaux's Spanish Reader; conversation and easy composition.

Sophomore year; first semester; four credits; four recitations.

14. **Spanish II.** A continuation of Course 13.

Sophomore year; second semester; four credits; four recitations.

Prerequisites: Modern Languages 13.

15. **Spanish III.** Modern Spanish syntax; Ramsey's Spanish Grammar; conversation and reading texts by modern Spanish writers; composition to include Spanish letter writing; Bonilla's Daily Spanish Life.

Junior year; first semester; four credits; four recitations.

Prerequisites: Modern Languages 13, and 14.

16. **Spanish IV.** A continuation of Course 15.

Junior year; second semester; four credits; four recitations.

Prerequisites: Modern Languages 13, 14, and 15.

LATIN.

Miss Gatch.

The object of this department is not only that the student may obtain mental culture and drill, but also to aid in the grammar and vocabulary of the English language.

Special attention is given to etymology and English derivatives, as a knowledge of Latin renders technical terms derived from that language easier to comprehend and commit.

The courses endeavor to meet the entrance requirements of schools of law and medicine and of universities.

1. **Foundations of Latin I.** Attention is given to declensions and conjugations, the vocabularies with etymologies and English derivatives, rules of syntax, simple translations and Latin composition.

The course in Pharmacy; freshman year; first semester; five credits; five recitations.

Elective in Commerce and Domestic Science and Art; sophomore year; four credits; four recitations.

2. **Foundations of Latin II.** A continuation of Course 1.

Second semester; four credits; four recitations.

The course in Pharmacy; freshman year; second semester; five credits; five recitations.

Elective in Commerce and Domestic Science and Art; sophomore year; four credits; four recitations.

5. **Virgil's Four Books of Aeneid I.** Selections from Ovid. Special attention is paid to prosody, syntax of Virgil, and mythology.

Elective; first semester; five credits; five recitations.

Prerequisites: Courses 1-4 inclusive, or an equivalent.

6. **Virgil's Four Books of Aeneid II.** A continuation of Course 5.

Elective; second semester; five credits; five recitations.

Prerequisites: Courses 1-5 inclusive, or an equivalent.

3. **Caesar's Gallic War I.** Books I and II and selections. Cicero's Selected Orations. Bennett's Grammar is used throughout the year. Attention is given to the use of the subjunctive mood; Latin composition and sight reading.

Elective in Commerce and Domestic Science and Art; junior year; first semester; four credits; four recitations.

Prerequisites: Courses 1 and 2.

4. **Caesar's Gallic War II.** A continuation of Course 3.

Second semester; four credits; four recitations.

Prerequisites: Courses 1, 2, and 3.

HISTORY.

Professor Horner.
Miss Gatch.

A. **Ancient History.** A survey of the ancient eastern nations, with a careful study of Greece and Rome.

The secondary courses; first year; first semester; three credits; three recitations.

B. **Mediaeval and Modern History.** A study of the social and political institutions of Europe, with discussions touching the material progress of these ages; famous works of art; foundations, inventions, discoveries, enterprises, improvements, and investigations.

The secondary courses; first year; second semester; three credits; three recitations.

1. **Modern History.** Special attention given to the English constitutional and colonial history.

The course in Domestic Science and Art; freshman year; first semester; three credits; three recitations.

2. **United States History.** With special attention to the colonial, political, and industrial aspects.

The courses in Commerce and Domestic Science and Art; freshman year; second semester; three credits; three recitations.

3. **English History.** An outline of political and constitutional history to serve as a framework for the study of the economic, social, and intellectual development of the nation.

Elective; sophomore year; first semester; three credits; three recitations.

ART.

Assistant Professor McLouth.
Miss Green.

The chief aim of the course in drawing is to teach the student to see truly, to obtain quicker perceptions, and to develop a keenness of observation, accurate judgment, and concentration of the mind. Few among us see truly what we see, and then only what we have been educated to see. Besides the general quickening of perception and the training of the eye to accurate sight, it affords the means of noting the forms of objects such as no written description can secure. It is a mode of expression second only to language itself.

In considering the study of drawing, its importance is too often lost sight of, and yet it may be safely said that drawing is a corner stone in the foundation of not only industrial education, but of a scientific education as well. In engineering courses, for instance, a knowledge of drawing is one of the first requirements. Drawing is an invaluable element in general education as a handmaid to the other branches of study; and the foremost educators advocate the study of drawing as the first step in any system of industrial education.

A. **Elementary Drawing.** The purpose of this course is to teach the student to see correctly and to judge accurately, to give him enough general knowledge of drawing to make it an aid in the pursuance of other branches of study where graphic representation is an important feature of the work; and to give him such a training as will best and most fully meet the needs of the subsequent work.

The course consists of the principles of drawing, elementary perspective and its application, drawing in charcoal and pencil (line and light and shade) from geometric forms, block casts and simple still life. Much attention is given to proportion and accurate outline, because in laboratory drawing, such as in Botany and Zoology, true outline is of greatest importance.

The secondary courses and an entrance requirement to all degree courses; first year; first semester; two credits; four class periods.

B. **Machine Sketching, Assembly Drawing and Working Drawings.** This course is continued throughout the second semester, but is divided and designed to meet the requirements of the several Engineering Courses. A considerable proportion of the time is given to machine sketching to acquaint the student with the method of securing and retaining data for complete working drawings by the aid of sketches; making and reading working drawings; detailing complicated parts, orthographic projection, and lettering. The conventions of practice and the method of making clear, accurately dimensioned sketches for working drawings is given first consideration. In machine sketching, the objects from which the sketches are made are selected from approved designs of commercial machinery and electrical apparatus to give familiarity with correct forms. This work is carried on in the machine shops.

The secondary courses in Engineering and an entrance requirement to all of the degree courses in Engineering; first year; second semester; two credits; four class periods.

Prerequisite: Course A.

C. **Scientific Drawing I.** This course is designed for students in Agriculture, Domestic Science and Art, Forestry, Commerce, and Pharmacy, to further carry out the aims of Course A, but instead of drawing in charcoal from geometric forms and block casts, more complicated drawings are made, the work being in pencil and pen and ink from plants and insect specimens. Students in the course in Domestic Science and Art will give special attention to flowers and foliage with a view to design.

The secondary courses in Agriculture, Domestic Science and Art, Forestry, Commerce, and Pharmacy; first year; second semester; two credits; four class periods.

Prerequisite: Course A.

D. **Scientific Drawing II.** This course is given to better equip the students in the course in Domestic Science and Art with a strong foundation for the applied art work following, that they may be better able to carry out the subsequent courses intelligently. The work is a continuation of Drawing A.

The secondary course in Domestic Science and Art and an entrance requirement to the degree course in Domestic Science and Art; second year; first semester; two credits; four class periods.

Prerequisites: Courses A and C.

E. **Scientific Drawing III.** A continuation of Course D.

Second semester; two credits; four class periods.

The secondary course in Domestic Science and Art and an entrance requirement to the degree course in Domestic Science and Art; second year; second semester; two credits; four class periods.

Prerequisites: Courses A, C and D.

1. **Freehand Lettering and Title Design.** This course is especially designed for students in Civil and Mining Engineering, and consists of freehand lettering, the construction of Roman and Gothic letters and spacing, design of lines and titles, the single line titles, the choice of style and size of letters, how to lay out and execute the design and tinting.

The course in Civil Engineering; freshman year; second semester; Mining Engineering; freshman year; first semester; two credits; two class periods.

Prerequisites: Courses A and B.

2. **Color Harmony.** Working in colored chalk, pastel, water and oil color from still life, to give the student a color foundation for the work in house furnishing, decoration, and millinery.

The course in Domestic Science and Art; second semester; freshman year; two credits; four class periods.

This course is open to other students as an elective.

Prerequisites: Courses A, C and D.

3. **Stencil Design I.** Stenciling is coming to be the principal factor in home decoration, not only of walls, as is generally thought and expressed by the word fresco, but also of wall coverings, as well as stenciling on textiles that can be taken down the same as costly tapestry. Draperies of all kinds, curtains, table coverings, runners, screens and sofa pillows are

among the things that can be beautifully stenciled. And all this is not beyond our reach. It can be done by all to a greater or less degree of success. Even the most modest degree of success will without doubt add materially to the beauty and attractiveness of a home. It is then with this purpose in view that Course 3 is given. The work is a continuation of Course C, giving special attention to the study of flowers and foliage with the idea of design. Each student will execute a number of patterns, cutting stencils suitable for application to the materials (linen, crash and art burlap) most available for house decoration.

The course in Domestic Science and Art; sophomore year; first semester; two credits; four class periods.

Prerequisites: Courses A, C, D, and 2.

4. **Stencil Design II.** A continuation of Course 3.

Second semester; two credits; four class periods.

The course in Domestic Science and Art; sophomore year; second semester; two credits; four class periods.

5. **Life—Costumed Figure.** Drawing in charcoal, pencil, pen and ink, or color.

The course in Domestic Science and Art; junior year; first semester; two credits; three class periods. This course is open to other students as an elective.

Prerequisites: Courses A, C, D, 2, and 3, or equivalents.

LIBRARY.

Mrs. Kidder.
Miss Knepper.

1. **Library Practice.** This course teaches by means of lectures and practical problems the use of catalogues, indexes, and reference books, such as dictionaries, encyclopedias, atlases, handbooks of general information, handbooks of history, statistics, quotations, etc.

All degree courses; freshman year; first semester; one credit; one recitation.

Sophomore year; transitional course; first semester; one credit; one recitation.

PHYSICAL EDUCATION.

Professor Angell.
. . . .
Mr. ———
Miss Williams.
Miss Houston.

It is the purpose of the Department of Physical Education to furnish students ample opportunity for physical development. The ill effects of the sedentary life of students may be counterbalanced by activity in the gymnasium and on the athletic field. All secondary, freshman and sophomore students are required to take two periods of exercise each week throughout the college year. Before being assigned to a class, each student will be given a thorough physical examination. The more important measures will be taken, and the condition of the vital organs noted. Advice will be given as to the best exercise to be used in securing a symmetrical development. Students below normal in health and muscular strength will receive special attention and consideration.

1. **Fall Work.** This course consists chiefly of outdoor exercises, cross-country running, baseball, tennis, football, and other games.

2. **Winter Work.** Calisthenics and light apparatus drills; class work on the horse, parallel and horizontal bars, rings, and similar apparatus; recreative games; basket-ball, wrestling, and boxing.

3. **Spring Work.** Track and field athletics, baseball, tennis, cross-country running.

4. **Normal Course.** Many students expect to take up the profession of teaching after graduation from college. A general knowledge of the theories of physical education and methods of gymnastic and athletic instruction is often of material assistance in securing important teaching positions.

Students showing an especial aptitude and interest in physical education will be admitted to this course. The work will include lectures on the history and development of physical training, the general physiological principles of exercises, methods of teaching, and first aid to the injured. Calisthenics, gymnastic drills, apparatus work, games, and athletics, will comprise the practical work of the course.

Elective; hours and credits subject to arrangement.

COURSES FOR WOMEN.

All sophomores, freshmen, and students of the secondary courses, unless physically unable, are required to take physical training. The classes meet twice a week for fifty-minute periods.

This course is planned for consecutively progressive work, and consists of systematic exercises for the development of all parts of the body. The purpose of the course is to develop a strong and symmetrical physique, with a graceful and easy carriage; to correct physical defects and deficiency in nervous control, and to insure the individual health and organic vigor.

In addition to the regular class work in the gymnasium, various games and pastimes are open to all young women of the College. The course is designed to be recreative as well as educational, and the cultivation of the play instinct is emphasized as an important factor in physical training.

Women pursuing this course are required to provide themselves with a gymnasium suit, consisting of a blouse waist and bloomers, with the regulation gymnasium shoes.

5. **Elementary Course.** Free developing exercises for poise, presence, and bearing, for the vital organs, for respiration; light apparatus work, Indian clubs, dumb-bells, wands; gymnastic tactics; military and fancy marching; harmonic movements; gymnastic games.

6. **Advanced Course.** Difficult free movements from Swedish and German systems; apparatus work of various kinds; single stick; marching, running, jumping; artistic gymnastics; Gilbert work and folk dances.

HYGIENE.

7. This course is arranged to give general information regarding the laws of health to all freshman students. Its purpose will be to instruct in a popular way in the general principles of hygiene. Lectures will be given, by specialists, that lead to a comprehensive knowledge of the human machine and its relation to healthful social life. Lectures on bacteriology, and its relation to health and well being, will be included in the course. Ventilation, physical exercise, recreation, diet and bathing, will also be discussed. Hygiene of occupation will be considered and the importance of good physical habits as a commercial asset will be emphasized in this course.

The course in Hygiene for young women will be given in a separate section.

All degree courses; freshman year; second semester; one lecture; one credit.

MILITARY SCIENCE AND TACTICS.

Captain McAlexander.

"I cannot help plead to my countrymen, at every opportunity, to cherish all that is manly and noble in the military profession, because peace is enervating, and no man is wise enough to foretell when soldiers may be in demand again."—General Sherman.

The military body of this College consists of one regiment of infantry having three battalions of four companies each, one separate battalion of three companies, a hospital corps detachment and a band of thirty-two instruments. The drill and administration are the same as in the Regular Army.

One of the objects of this instruction is to prepare the cadet so that upon graduation he will be thoroughly competent to hold a commission in the National Guard or volunteer army.

The greater part of the instruction is directed toward having cadets adopt a systematic rule of conduct, inculcating accurate methods in everything they undertake. This not only places cadets in the condition to receive favorably all instruction in the military department, but facilitates study in the other departments, and becomes a valuable asset to a young man going out into the world in any profession.

Military drill improves the habits and manners of the student, develops him physically, and gives him that military knowledge which it is desirable every citizen should possess that he may render intelligent aid to his country or state in the time of need. It cultivates a manly spirit, ready and implicit obedience, respect for authority and self-restraint—all qualities of inestimable value to a young man.

Instruction in the course is prescribed for all undergraduate male students. Students physically unable to bear arms are excused from active military drill but will be assigned some light duty by the head of the department. The instruction is both practical and theoretical.

The present armory contains a drill room 70x100 feet in extent, six offices, and suitable rooms for storing guns and other ordnance.

Seven hundred and twenty modern U. S. magazine rifles (Krag-Jorgensen) and equipment have been obtained. Other necessary accoutrements and apparatus for the thorough equipment of the military department are furnished by the College.

Appointment and promotion of officers and non-commissioned officers, and their relative rank in each grade, are determined according to the military standing of the cadets, based upon a careful consideration of the following points: knowledge of drill and other duties as determined by examination, practical application of this knowledge on the drill field, and recommendations of superior officers; zeal, soldierly bearing, and aptitude for command; character; military record; general standing in College.

Commissioned officers are selected from the senior class or such as have had three or more years of drill; non-commissioned officers from the junior and sophomore classes; all reductions are to the grade of private. All appointments and promotions are made by the commandant with the approval of the President of the College.

Drill. Secondary, freshman, sophomore, junior and senior years, four hours per week. Senior privates (excepting bandmen) who have had two or more years of drill may be excused from such drill during the second semester. The practical course in infantry includes the school of the soldier, company and battalion, in close and extended order; evolutions of the regiment; ceremonies; guard, and outpost duty; target practice and battle tactics.

Paragraph 20, General Orders No. 155, War Department, July 24, 1907, directs that, "Upon occasions of Military Ceremony, in the execution of drills, guard duty, and when students are receiving any other practical military instruction, they shall appear in the uniform prescribed by the institution. They shall be held strictly accountable for the arms and accoutrements issued to them."

The wearing of mixed civilian and uniform clothing is prohibited at all times. The uniform complete costs about $18.00, and is of the regulation olive drab color adopted by the United States Army, and makes a very neat and serviceable suit.

Students must come prepared to deposit the price of the uniform, for which they will be measured as soon as they learn the position of a soldier.

Proficiency in the military department is a requisite to graduation.

Theoretical Instruction I. This instruction consists of recitations in Infantry, Drill Regulations, Field Service Regulaions, Manual of Guard Duty, and Army Regulations; instruction in military correspondence and reports and returns; lectures on military subjects that pertain to the organization and administration of the United States military forces in peace and in war. Junior year; first semester; one credit; one recitation or lecture.

Theoretical Instruction II. Junior year; second semester; one credit; one recitation or lecture.

Theoretical Instruction III. Senior year; first semester; one credit; one recitation or lecture.

Theoretical Instruction IV. Senior year; second semester; one credit; one recitation or lecture.

The Brodie Banner is a richly decorated silken banner that may be carried by the best drilled company as a mark of merit. Each year it goes to the company making the highest total number of credits in competitive drill. Company M carries the honor for 1908-09.

ROSTER.

FIELD AND STAFF.

Colonel	R. H. Rodgers
Lieut. Colonel	R. R. Clark
Capt. and Adjutant	H. S. Wall
Captain and Q. M.	C. H. Stone
Captain and Com.	E. R. Crowe
Captain and I. S. A. P.	C. E. Bowen

NON-COMMISSIONED STAFF.

Sergeant Major	H. Evans
Q. M. Sergeant	
Commissary Sergeant	
Color Sergeant	K. W. Farnsworth
Color Sergeant	E. A. Sorenson

Band.

Leader	H. L. Beard
Chief Musician	O. K. Cole
Chief Trumpeter	D. O. Pelland
Principal Musician	J. R. Luper
Drum Major	R. E. Bower
Sergeant	E. A. Hudson
Sergeant	F. W. McGinnis
Sergeant	A. H. Utzinger
Sergeant	F. R. Becker
Corporal	W. C. Gagnon
Corporal	A. S. Blanchard
Corporal	J. J. Karstetter
Corporal	C. F. Chambers
Corporal	M. J. Lazelle
Corporal	Roy Price
Corporal	C. A. Vincent
Corporal	H. D. Bowman

First Battalion.

Major	F. L. Michelbook
First Lieut. and Adjt.	W. R. Palmer
Sergeant Major	T. S. Abbott

	COMPANY A.	COMPANY B.
Captain	F. R. Pendergrass	C. S. Harris
First Lieutenant	C. Schrack	W. D. Sutton
Second Lieutenant	H. G. Suttle	J. W. Darling
First Sergeant	C. Wolff	H. J. Pfandhofer
Sergeant	M. G. Howard	E. A. Olson
Sergeant	A. H. Schmidt	R. B. Knapp
Sergeant	R. W. Skibbe	J. O. Vines
Sergeant	C. A. Burris	R. H. Roberts
Corporal	F. A. Miller	L. M. Ellis
Corporal	L. P. Phillips	F. J. Williams
Corporal	A. E. Rains	F. W. Thompson
Corporal	O. J. Olson	W. C. Dyer

	COMPANY C.	COMPANY D.
Captain	A. K. Chapman	T. J. Autzen
First Lieutenant	J. Koeber	J. S. McMahon
Second Lieutenant	U. E. Brown	M. A. McCall
First Sergeant	J. M. Reynolds	J. J. Thompson
Sergeant	H. L. Davis	R. H. Hawley
Sergeant	J. C. Plankington	C. W. Crews
Sergeant	P. B. Hawley	L. H. Booth
Sergeant	S. E. Tripp	F. M. Moore
Corporal	R. F. Ginther	W. Going
Corporal	F. Graham	R. V. Hawley
Corporal	B. Patterson	A. Nilsson
Corporal	J. F. Pernot	E. D. Roberts

Second Battalion.

Major....................S. B. Hall   Sergeant Major..........J. D. Lines
First Lieut. and Adjt....N. T. Smith

	COMPANY E.	COMPANY F.
Captain	J. A. Tiffany	R. A. McCully
First Lieutenant	G. H. Benshadler	J. S. Gilkey
Second Lieutenant	R. L. Davidson	W. A. Hensley
First Sergeant	J. F. Ketels	Raymond Seely
Sergeant	R. B. Hamilton	R. C. Gleason
Sergeant	B. L. Clark	P. Smith
Sergeant	C. A. Dunn	J. K. Fairchild
Sergeant	J. A. Ganong	H. M. Cross
Corporal	A. G. Erskine	B. Gilbert
Corporal	W. Keck	E. B. Lemon
Corporal	H. O'Connor	R. B. Olp
Corporal	A. A. Bailey	B. Olson

	COMPANY G.	COMPANY H.
Captain	F. D. Luse	J. J. Peddicord
First Lieutenant	E. S. McElligott	P. C. Zimmerman
Second Lieutenant	W. C. Galloway	A. B. Smith
First Sergeant	A. Collette	L. V. Hendricks
Sergeant	C. F. Galligan	V. P. Gianella
Sergeant	F. W. Wright	L. J. True
Sergeant	W. C. Allen	G. A. Zimmerman
Sergeant	E. W. Wallace	C. C. Titus
Corporal	C. L. Johns	W. R. Carlson
Corporal	C. D. Hatfield	R. Loosley
Corporal	H. J. Eberly	R. W. Nelson
Corporal	H. H. Siemens	L. C. Perry

Third Battalion.

Major....................M. R. Cox   Sergeant Major.................
First Lieut. and Adjt.....F. E. Hall

	COMPANY I.	COMPANY K.
Captain	O. Beaty	E. C. Calloway
First Lieutetnant	J. J. Beaty	G. A. Nelson
Second Lieutenant	N. F. McColl	B. B. Totten
First Sergeant	R. P. Landis	L. C. Rhodes
Sergeant	A. M. Woodruff	J. W. Surry
Sergeant	S. Maurer	R. A. Rawson
Sergeant	L. H. Miles	F. E. McGrew
Sergeant	E. D. Calvin	C. L. Nelson
Corporal	W. Chalmers	H. H. Barber
Corporal	G. F. Neefus	B. N. Hawley
Corporal	I. E. Nelson	R. Anderson
Corporal	O. N. Moore	G. R. Burtner

	COMPANY L.	COMPANY M.
Captain		P. H. McAlexander
First Lieutenant	J. Muldrick	R. H. Sprague
Second Lieutenant	R. Cady	A. M. Weatherford
First Sergeant	A. Finlay	L. C. Rulifson
Sergeant	W. T. Stratton	E. J. Silva
Sergeant	L. A. Duckworth	C. J. Allison
Sergeant	L. Breithaupt	D. H. Rowe
Sergeant	B. Fowells	W. R. Tompkins
Corporal	S. A. Wilson	R. G. Murray
Corporal	E. Withycombe	C. Windom
Corporal	O. Shattuck	H. C. Montgomery
Corporal	H. W. McRobbie	W. B. Beasley

First Separate Battalion.

Major ... G. A. Cross
Sergeant Major ... F. R. Brown
First Lieut. and Adjt. . G. F. Winslow

	COMPANY A.	COMPANY B.	COMPANY C.
Captain	R. W. Worstell	R. Neal	B. J. Groth
First Lieut.	H. R. Zimmerman	J. C. Strebin	W. G. Lane
Second Lieut.	C. D. Hull	H. K. Donnelly	F. E. Ewart
First Sergt.	L. B. Howey	E. E. Carroll	I. Province
Sergeant	E. M. Billings	C. Metcalf	H. D. Marsh
Sergeant	Robt. Schultz	F. P. Gowan	F. S. McCall
Sergeant	E. G. Pickler	J. Gordon	C. C. Dickson
Sergeant	W. A. Toner	F. E. Pernot	A. O'Connor
Corporal	T. Reierson	J. Mitchell	P. R. Poff
Corporal	O. B. Willey	C. L. Jamison	A. D. Schmidt
Corporal	A. Asbahr	W. Oviatt	G. Startzoff
Corporal	J. L. McAllister	F. N. Suver	C. C. Thompson

SCHOOL OF MUSIC.

Faculty.

Professor William Frederic Gaskins, Director, Voice, Singing, Conducting.
Professor William Robinson Boone, Piano, Organ, Theory.
Instructor Genevieve Baum-Gaskins, Voice, Piano, Organ.
Instructor Nettie M. Flinn, Violin, Piano.
Instructor Harry L. Beard, Band, Brass and Wood Wind Instruments.

The Faculty of the School of Music is composed of thoroughly trained musicians who often publicly demonstrate their talent and skill. They were selected from among a large number of applicants because of their superior ability and previous success as teachers.

The advantage of beginning music study with instructors skilled in the psychology and practice of teaching cannot be overestimated, and results in an appreciable saving of time and expense and a maximum gain in efficiency. Hence the School of Music offers the following comprehensive courses of study to earnest students who wish to acquire scholarly musicianship at modest expense. These courses may be begun at any time during the school year, and all students may advance as rapidly as is consistent with good work. The time required for the completion of the courses is dependent upon the age, previous preparation, talent, ability and character of the work of each student.

Students in the School of Music may enter classes in the several departments of the College, and to enhance their general culture are encouraged to take at least one study throughout the school year other than the work required in the regular music courses. Students of the Oregon Agricultural College will be permitted to study music only with instructors connected with the School of Music.

The following courses are offered:

1. **Voice I.** Exercises will be given for correct breath control; purity of tone production; freedom of action and blend-

ing of registers; articulation and correct form for enunciation of vowels and consonants; elements of phrasing and style. Students will appear on programs if required, singing from memory, and will attend all recitals and rehearsals unless otherwise specified.

Two lessons a week in voice; practice with instrument, one to two hours daily; sight reading and ear training, one hour a week; harmony and history of music, two hours a week each; choir and chorus practice throughout the year.

2. **Voice II.** This course consists of exercises for tone placing; phrasing and style; legato, marcato and portamento delivery. Physiology of vocal mechanism, songs, and exercises of medium grade in English, German, or Italian. All students will attend recitals, and appear upon program if required, singing from memory.

Two lessons a week in voice; practice with instrument, one to two hours daily; two lessons a week in harmony; one lesson a week in counterpoint; advanced history of music twenty-four weeks; choir and chorus practice throughout the year.

Prerequisite: Course 1 or its equivalent.

3. **Voice III.** This course embraces the study of tone color, agility; trill; messa di voce; recitation; declamation; phrasing, style; songs in English, German, Italian or French. All students are required to attend recitals and rehearsals and appear upon programs when requested, singing from memory.

Two lessons a week in voice; two lessons a week in harmony and counterpoint; practice with instrument, one to three hours daily; one lesson a week in theory and composition; choir and chorus practice throughout the year. A certificate is granted upon the satisfactory completion of this course.

Prerequisite: Course 2 or its equivalent.

4. **Voice IV.** This course embraces advanced work in vocal technique by means of difficult exercises, songs, oratorios and operas; memory singing in public; all students are required to attend recitals and rehearsals and appear upon programs when requested.

Two lessons a week in voice; practice with instrument, one to three hours daily; choir and chorus practice throughout the year. A gold medal will be granted upon the satisfactory completion of this course.

Prerequisite: Course 3 or its equivalent.

5. **Piano I.** In this course the student is required to memorize and play with correct fingering all chromatic major and both forms of minor scales, legato in quarter and eighth notes; arpeggios formed on major and minor triads; major and minor chords in triad and four-note form; dominant seventh chord; four-note form with all inversions played with sustained arm touch, hands separately; figured chords in quarter and eighth notes; octaves and staccato octaves in any required scale; sight reading, and six compositions of third grade.

Two lessons a week on piano; two lessons a week in harmony; two lessons a week in music history; practice with instrument, three to four hours daily.

Prerequisite: Preparatory work of such scope as to insure fair scholarship.

6. **Piano II.** The work of this course requires that the student play from memory with correct fingering, all major, minor, and chromatic scales; dominant and diminished seventh chords with their inversions; broken chords played in quarter and eighth notes; arpeggios formed on the major and minor triads, metronome quarter note: one hundred; staccato octaves in major scales, quarter and eighth notes; sight reading; recognition of major and minor scales, and all intervals from the tonic of the major scale.

In addition to the above, the student must have satisfactorily completed advanced music history in the regular second year class.

Two lessons a week on piano; two lessons a week in harmony; one lesson a week in counterpoint; two lessons a week in advanced music history for twenty-four weeks; practice with instrument, three to four hours daily.

Prerequisite: Course 5 or its equivalent.

7. **Piano III.** In addition to the work of the foregoing courses the student must play from memory with correct fingering, major and minor scales in thirds, sixths and octaves, simi-

lar and contrary motion, compass four octaves, in quarter, eighth, and sixteenth notes; triplet rhythms in quarter and eighth notes; metronome quarter note 120; tempo scales studied to metronome quarter note 120-130; major and minor chords in triad, and four-note form; dominant seventh and diminished seventh chords four-note form, extended and broken with all inversions and in moderate tempo; arpeggios formed on the major and minor common chords; and be able to transpose easy hymns; sight read readily; to play from memory five compositions of the preceding grade in a satisfactory manner.

Two lessons a week on piano; two lessons a week for twenty-four weeks in harmony and harmonic analysis; one lesson a week in counterpoint; practice with instrument three to five hours daily.

Prerequisite: Course 6 or its equivalent.

8. **Piano IV.** The technical tests in this course will be similar to those in the previous courses, except that the tempo will be increased, with additional study of unusual fingerings and chord formations. Exercises in scales in double thirds, fourths and sixths in parallel motion will be required to be played in quarter and eighth notes; sight playing, transposing, and extemporaneous harmonizing melodies at the keyboard; students will be required to play at sight a composition equally as difficult as Beethoven's Sonata in A Flat, op. 26, and must be able to transpose and play at sight in any given key, a simple hymn or chorale. For graduation, students are required to perform publicly under the direction of the School of Music, playing a program not less than one hour in length, arranged by the Instructor and approved by the Director, and which shall include two or more numbers equal in difficulty to any compositions in the list of senior pieces.

Following is the list of senior pieces, of which the student must play ten from memory: Wagner-Liszt—Tannhauser March; Chopin—Scherzo in B Minor, op. 31; Mendelssohn—Rondo Capriccioso, op. 14, Prelude and Fugue in A Minor; Variations Serieuses; Schumann—Kreisleriana, op. 16, Carnival, op. 9; MacDowell—Marzwind and Wald-Idyllen, op. 19, Nos. 1, 3 and 4; Weber—Polacca Brillante, op. 72, Rondo Brillante, op. 62; Mozart—Concerto in D Minor; Fugue in A Minor—Bach, or his Italian Concerto; Suite in D—Handel; Staccato Etude—Rubinstein; Caprice Espannol, op. 37—Moskowski; Concert Etude, op. 36—MacDowell; Ballade—Grieg; Liebstod (Tristan and Isolde)—Liszt; Bach, Chromatic Fantasy and Fugue; Italian Concerts. Brahms, Ballade; Scherzo in E Flat Minor, op. 4. Beethoven Sonatas, op. 53 and 57. Chopin, Ballade in A Flat. Grieg, Ballade, Sonata in E Minor. Liszt, Hungarian Rhapsodies, No. 2 and 6. Mozart, Fantasia in C Minor, Sonata in F. Mendelssohn, Variations Serieuses. Rubinstein, Staccato Etude. Concertos by Beethoven, Chopin, Henselt, Hummel, Liszt, MacDowell, Mendelssohn, Mozart and Saint-Saens, or five others at teacher's option.

Two lessons a week on piano; practice with instrument three to five hours daily; two lessons a week in composition.

To satisfactorily complete this course the student must fulfil the requirements above outlined and appear in programs when required.

9. **Theory**. The course in Theory will comprise systematic and progressive study in the elements of music. Consideration will be given to the theories of acoustics, to notation, scales, keys, modes, intervals, melodic progression, tempo, dynamics, rhythm and ear training. Advanced Theory will embrace harmony, counterpoint, and subdivisions thereof, Music History, concluding with Form, Composition and Orchestration.

10. **Violin I.** This course is preparatory and designed to develop correct fingering, free bowing and accuracy as to pitch. Appropriate studies by the following composers, or acceptable equivalents, are required for satisfactory performance before advancing to course 11:

Dancla, DeBeriot, Pleyel duets, Dort, Hayser. Accurate playing of all major and minor scales is required; students must appear in public recitals when requested, playing from memory.

11. **Violin II.** Prerequisite, Course 10. Studies by David Kayser, Schradieck, Kreutzer, or acceptable equivalents, for accuracy in playing all positions, and skill in scales and arpeggios at rapid tempos. Suitable solos, concertos, sonatas, etc.,

also ensemble playing at discretion of instructor. Students must appear in public recitals when requested, playing from memory. A certificate is granted upon satisfactory completion of this course.

12. **Violin III.** This course comprises the most advanced studies by Fiorillo, Rode, Paganini, Bach, concertos and sonatas of the old and modern schools, solos by Vieuxtemps, Wieniawski and other compositions of similar difficulty. Students must appear in public recitals when requested, playing from memory.

To graduate, the student must satisfactorily complete the above or its equivalent, complete theory Course 7 (as outlined for piano) and give a public recital, playing from memory program not less than an hour in length, arranged by Instructor and approved by Director.

BAND.

13. Instruction will be given by the regular College Band Leader in the use of brass, wood wind and percussion instruments.

To become a member of the College Band a student must pass a satisfactory examination in the elements of music and ability to perform on his instrument.

Members are required to attend rehearsals each school day and a reasonable amount of individual practice is expected.

There is no charge for instruction in the band. Each member must furnish his own instrument and music stand, except basses, baritones, altos and drums, which are furnished by the College.

At the beginning of the College year the band will adopt the low pitch, as this is used by the best professional bands throughout the United States. Any student desiring to enter the band should see that his instrument is in **low pitch.**

The courses for the various band instruments are as follows:

Cornet—Methods by Arbou, characteristic studies by St. Jacome.

Clarinet—Methods by Dieppo; studies by Dieppo and Blume.

French Horn—Methods by Franz; studies by Franz and Kayffman.

In all other band instruments, including the oboe, bassoon, saxaphone, alto and bass clarinets, drummers' traps, xylophone, and orchestra bells, the courses will be similar to those given above.

The work in theory required to complete these courses is similar and equivalent to that outlined for piano courses 5 and 6.

GENERAL INFORMATION.

Lessons in all departments are of thirty minutes' duration.

Voices will be tested free of charge by appointment with the Director.

Pianos for practice will be furnished students of the School of Music. These pianos will be of good quality and kept in good condition. Students of the School of Music not owning pianos will not be permitted to practice upon instruments outside of the School of Music unless by special arrangement with the Director.

This will always insure superior instruments for private use at regular periods. Students will be required to practice alone unless furnished with written permission from the Director.

Any injury to instruments, besides the normal wear and use in practice, must be paid for by the student or persons responsible therefor. Music will be furnished pupils through the School of Music or the local dealers at teachers' rates. Thus students will secure the necessary exercises, studies, songs and pieces, at the lowest possible cost. In all but exceptional instances, music for use in the chorus and choir will be furnished free by the College. It is obvious that the faculty will endeavor to surround students with every encouragement for thorough and economical study.

A recital will be given every month, or oftener, by members of the faculty or members of the various classes, at which every student of the School of Music is expected to be present.

The Glee and Mandolin Clubs and Orchestra give frequent public recitals and concerts, and each has at least one rehearsal a week. Information concerning membership in these organizations may be obtained by application to the Director.

Choir and Chorus Practice. Membership is free to students of the College, and open to talented singers not connected therewith by payment of a nominal fee at the College business office, and acceptance of qualifications and credentials by the Director.

It is the intention to conduct one chorus rehearsal each week.

Several concerts will be given during the year, in which oratorios, operas and mixed choruses will be sung. Whenever practicable, operas will be presented with appropriate costumes, action and scenery.

All students connecting themselves with the School of Music thereby agree to observe its rules and requirements.

No student is permitted to omit lessons or practice without sufficient excuse, and no deduction is made for absence from lessons or practice or for discontinuance, except in cases of severe illness. For unavoidable absence, lessons may be made up only by appointment, and before the expiration of the term.

The school year consists of three terms of twelve weeks each, beginning September 24.

Registration and incidental fee, payable annually in advance, $2.00.

Tuition for instruction is as follows, payable in advance by the term, at the business office of the Financial Secretary. Less than twelve lessons will not be given except by special arrangement with the Director.

Voice. Professor Gaskins. Private instruction.

Twelve lessons, one a week	$12.00
Twenty-four lessons, two a week	22.50
Thirty-six lessons, three a week	33.50

Voice, Piano. Instructor Genevieve Baum-Gaskins. Private instruction.

Twelve lessons, one a week	$10.00
Twenty-four lessons, two a week	18.50
Thirty-six lessons, three a week	27.50

Piano. Professor Boone. Private instruction.

Twelve lessons, one a week	$12.00
Twenty-four lessons, two a week	22.50
Thirty-six lessons, three a week	33.50

Piano. Assistant Flinn. Private instruction.

Twelve lessons, one a week	$10.00
Twenty-four lessons, two a week	18.50
Thirty-six lessons, two a week	27.50

Violin. Instructor Flinn. Private instruction.

Twelve lessons, one a week	$ 9.00
Twenty-four lessons, two a week	17.50
Thirty-six lessons, three a week	25.00

Band Instruments. Instructor Beard. Private instruction.

Twelve lessons, one a week	$ 9.00
Twenty-four lessons, two a week	17.50
Thirty-six lessons, three a week	25.00

Music History. Two hours a week, a term..........$ 3.00

Theory, Harmony, Counterpoint, Composition, in class instruction, two hours a week, a term..................$ 6.00

Rentals. Pianos for practice will be furnished students of the School of Music at the following rates:

Term of twelve weeks, one hour a day	$ 3.50
Two hours	6.00
Three hours	8.50
Four hours	9.50
Five hours	10.00

For additional information address William Frederic Gaskins, Director, Administration Building, Oregon Agricultural College, Corvallis, Oregon.

WINTER SHORT COURSES.

Upon the farms and in the homes of this state are thousands of young people who are to become the farmers, gardeners, stockmen, orchardists, housekeepers, and home-makers of the future. To keep pace with the rapid development in the science, art, and practice of agriculture and home-making and thus be enabled to attain the highest possible success, in these fields of endeavor, one should obtain as much special training as possible. Many of these young people, however, are so situated that it is impossible for them to attend any of the regular four-year courses in these subjects. There are also, no doubt, many mature farmers, and housewives, well past the usual school age, who desire to acquaint themselves more fully with the most recent developments in their respective lines of labor. To meet the needs of such persons, both young and old, various plans have been adopted in the several states, the most important of which are the Farmers' Institutes and the Winter Short Courses.

During the past ten years the Oregon Agricultural College has, each winter, offered a two-week course of lectures and demonstrations which has been known as the Short Course in Agriculture. During the greater portion of that time there has also been offered each year a six-week course in dairying for those who desired to obtain some knowledge of modern dairy and creamery methods. These courses have been so generally successful and have called forth so many expressions of approval from those who attended them, that last year it was decided to enlarge the scope of this work, and accordingly the College now offers the following courses during the coming winter:

General Agriculture, "Farmers' Week"; Dairying; Horticulture; Mechanic Arts; Domestic Science and Art.

Each of these courses, except the one in Mechanic Arts, which will consist entirely of practical work in the shops or in the draughting room, will consist of a series of lectures supplemented by demonstrations, and by practical exercises in the dairy, the orchard, and the various laboratories.

The work offered will be adapted to the practical needs of farmers, fruit-growers, dairymen, mechanics, or of women in the home. It is believed, also, that teachers who desire to prepare themselves to teach elementary agriculture now required in our public schools, will find these courses decidedly helpful.

The various courses are so planned as to provide the largest amount of practical information in the short time available. The subjects to be discussed are those in which every farmer should be interested, and the aim will be to present them in the most practical manner possible. The laboratories and collections, the shops, the creamery, the orchards, the college farm, the cutting, fitting and sewing rooms, the dining rooms and kitchens, all offer facilities for demonstration or for practical exercises by the students attending these courses.

Students should report to the Registrar in the administration building for registration and for assignment to the various courses. A list of boarding and lodging places may be consulted at the office of the Y. M. C. A.

No entrance examination or other educational test will be required; but no one will be received who is less than sixteen years of age. Nearly two hundred men and women registered in these courses in 1909, their ages ranging from sixteen to over fifty.

There will be no fees whatever for attending the exercises of Farmers' Week. Those who attend the other courses will be expected to pay a registration fee of $1.00. In addition, students in the six-week course in Dairying will pay a laboratory fee of $2.00 and a breakage deposit of $3.00; those in Mechanic Arts will pay a fee of $2.00 for the course in blacksmithing and $2.00 for woodwork; those in Household Science and Art will pay a fee of $1.50 to cover cost of materials used in the course in cookery, and each student will be expected to furnish her own materials for all other classes. Board and lodging may be had in Corvallis at $3.50 to $4.50 per week.

A pleasing and profitable feature of these courses will be a series of lectures by some of the most prominent men of the

State—men who are especially well qualified by successful experience to speak upon some particular phase of agriculture.

"Farmers' Week." The exercises of Farmers' Week will begin Tuesday, January 4, and close Saturday, January 8. They will be conducted somewhat upon the plan of an extended farmers' institute and will consist principally of lectures, supplemented by such demonstrations and practical exercises as are made possible by the equipment of the College and Experiment Station. The aim of the course will be to give to those in attendance the largest possible amount of information regarding the principles of successful agricultural and horticultural practices. The lectures and demonstrations by the various members of the faculty will be supplemented by one or more lectures each day by some of the most successful men of the State.

Are you interested in your own soil and its improvement, in the growth of clover, alfalfa, vetch, kale, and other crops; in better, more economical and more profitable feeding of dairy cows and other stock or in their diseases? Do you wish to know how to bud and graft; how to pack your fruit successfully; how to distinguish the principal crop pests and how to control them; how to use the Babcock test? Are you interested in walnut growing? If so, be sure to attend this Farmers' Week. Bring your problems with you. Come prepared to ask questions and let all talk them over together. A large number of the most successful farmers in the State will be here. Be one of them! The railroads will be asked to give special rates, of which further announcements will be made.

GENERAL AGRICULTURE.

Soils. This course will discuss many intensely practical questions related to the soil and its handling. Although both the physical and chemical characteristics of soils will be dealt with, the former will receive the major share of attention. Such subjects as the following will be presented: Soil Structure; Soil Moisture—Moisture Conservation, Tile Drainage, Irrigation; Building Up Soils—Soil Fertility, Soil Heat and Air, Soil Bacteria, Manures, Lime and Land Plaster, Tillage; Soil Types of Oregon—Value of Each, Rotations and Treatment of Each, Soil Sampling, Soil Judging. Lectures, readings, demonstrations, laboratory and field practice, three hours per week for five weeks, starting January 18; Horticultural and Dairy Students.

Forage Crops. This course deals with the growing of all forage crops adapted to Western Oregon, or irrigated Eastern Oregon. Pasture, hay, soiling, and silage crops will be considered from seed, seed-bed and seeding, to cutting and storage. Special subjects treated in this course will be: Testing Seed, Sources and Improvement of Seed, Comparison of Pasturing and Soiling, Soiling Crop Rotations, Siloing, How to Grow Alfalfa, Disposal of Manure and Sewage, Profits of Intensive Farming.

Lectures, readings, demonstrations, laboratory and field practice. Three hours per week, last five weeks, for Dairy Students.

Feeds and Feeding. This will include the study of forage plants, their growth, adaptability, chemical composition, and relationship to successful dairy husbandry. The study of the fundamental principles of animal nutrition, including digestion, assimilation, the composition and feeding value of the different grains and commercial feed stuffs, and how they should be fed for best results in milk production.

Breeds and Breeding. A necessary requirement of a successful dairyman is the ability to harmonize breed and environment. Hence this work will embrace the study of the origin and characteristics of the leading dairy breeds, adaptability, form as related to function, and a general discussion of types.

The College maintains a typical herd of dairy animals, comprising representatives of five popular breeds, thus affording the student an excellent opportunity to make comparisons. Stock judging both by the score-card system and by comparison will be a feature of this work.

Veterinary Science. This will consist of a general discussion of the cause of the common diseases of live stock, their treatment and best means of prevention. It will also include discussions relative to the usual management and care of the herds and flocks and individual members thereof, in health or disease.

Poultry Husbandry. In the general agricultural course the subject of poultry husbandry will be taken up. This subject will be discussed from the standpoint of poultry on the farm and the following topics will be treated: Breeds and Their Characteristics; Feeding for Eggs and for Meat Production; Incubation, Natural and Artificial; Poultry Houses and Appliances, and General Management of Poultry.

Chemistry. Work in this department will be arranged to suit best the requirements of the student who takes the special winter course in the College of Agriculture. This work will consist of lectures and discussions. The lectures will be accompanied by experiments or demonstrations when practicable.

A discussion of some of the simple elements and compounds which are of vital importance to the agriculturist will be taken up first, after which, subjects bearing directly upon dairying, horticulture, general agriculture, etc., will be studied.

For the dairy student such subjects as the composition and value of feeding stuffs, the composition and value and care of the waste product of dairy animals will be discussed. Some time also will be devoted to the chemistry of dairy products.

For the student in horticulture, special emphasis will be given the study of soils, their origin, composition, and value; also a study of the chemistry of fertilizer materials; their composition, value, and use.

Some lectures will be arranged for the benefit of the student taking work in general agriculture. The composition, value, and care of the by-product of the farm will be studied and discussed. How can wood ashes, straw, refuse from the house and barn, manures, etc., be most profitably cared for and used?

For the student in domestic science, lectures will be given dealing with the chemistry of foods; the effect of cooking upon their composition and value. Many of the lectures and discussions arranged for the students in dairying, horticulture, general agriculture, etc., will be of much interest and value to the students of domestic science.

The time of the special courses in agriculture being so short, it will not be practicable to offer any laboratory work in chemistry; however, the work will be accompanied from time to time by demonstrations and experiments by the instructor.

Bacteriology. It is most important that the modern agriculturist should have a comprehensive understanding of what bacteria are, and what they do; for agriculture in all its phases is influenced by bacterial action, and the time has come when the agriculturist should avail himself of the opportunities to learn more concerning the plants of lower order, as they are of the greatest importance to his profession.

The short-course student this year will be given lectures each day upon some subject concerning agriculture; such questions as "How to grow and care for nitrifying germs?" will be explained and demonstrated in a practical manner; diseases of stock and diseases of poultry, their causes, preventions, and remedies; the utilization of waste products on the farm, making of vinegar, preserving of fruit and fruit juices, sanitation of the dairy and dairy products, will be explained and demonstrated in such a manner that all may understand.

Dairy Bacteriology. Inasmuch as dairying is bacteriological work, and the quality of all products of the dairy is governed by bacterial action, a full course of lectures will be delivered to the students of the Dairy Short Course so that they obtain a comprehensive understanding of the underlying principles of bacteriology in its relation to dairying. This will be supplemented by laboratory demonstrations and practical work.

Business Methods on the Farm. The Oregon Agricultural College is taking a leading part among schools in emphasizing the business side of the farm, the shop, and the household. The fact that there is a business side to every vocation has been recognized by providing a course in bookkeeping, business practice, and commercial law especially adapted to the need of short-course students. The course will consist of simple methods of keeping farm accounts and statistics; the organization of a model farm from the financial point of view; marketing products; legal forms, etc. The actual work will be done by the students so far as the time will permit. This course is given by the School of Commerce. All short-course students are eligible to take this work.

DAIRYING.

The course is designed to familiarize the students with the modern forms of dairy apparatus, and teach the underlying principles of the production, care, and manufacture of milk into butter and cheese. Both the how and the why will be the aim of the instructors, and it is the intention that the ideas set forth will be applicable to the farm dairy as well as the larger creamery or cheese factory.

The dairy course is open to all persons of good moral character, both male and female, who are at least eighteen years of age and who have a common school education. No entrance examinations will be required, but it is expected that those seeking admission will be able to understand lectures, take some notes, and perform a small amount of text-book work.

More than one-half of the floor space on the first floor of Agricultural Hall is devoted to the dairy department. At the left of the main entrance is the dairy instructor's office, and to the right are located the dairy rooms proper. The main work-room, located in the northwest corner, is 24x44 feet, with cement floor sloping from all directions toward the center, where a bell-trap connects with the sewer system of the building. This room is equipped with several of the modern styles of cream separators, operated either by steam or hand power. There are also combined churns and workers, box churns, table workers, receiving and ripening vats, and the necessary apparatus for the manufacture of full cream Cheddar cheese.

Adjoining the main work-room are lockers for student use, a well-lighted boiler room 16x18 feet, and a wood and store-room.

In the northeast corner of the building is the dairy laboratory, 22x40 feet, equipped with all the modern devices for testing milk and its products, such as hand and turbine Babcock test, curd tests, rennet tests, acid tests, cream scales, automatic acid measures, etc.

Two commodious cheese-curing rooms, 10x16 and 12x16 feet, complete the quarters of the dairy department.

The College library, located in the Administration Building, will be open to students of the dairy course. Here access may be had to the leading farm and dairy papers of the United States as well as some foreign publications. Full sets of the bulletins of the Experiment Stations and the United States Department of Agriculture are on the library shelves, also many valuable books pertaining to dairy matters.

Students will meet for work six days per week. The forenoon of two days will be devoted to cream separation and butter-making, two days to cheese-making, and two will be spent in the dairy laboratory. In the afternoon of each day, except those devoted to cheese-making, lectures and recitations will occupy the time during two or three hours. The object of this class-room work will be to give the student a better knowledge of the underlying principles upon which practical dairy operations are based. An outline of each portion of the work follows:

Practical Dairy Work. This work will consist of extended practice in the use of the Babcock test in determining the percentage of butter fat contained in milk, skim milk, butter-milk, cream, whey, butter, and cheese. Particular attention will be given to the use of scales in connection with cream testing. The use of acid tests for determining the ripeness of cream will be considered. Daily practice in the application of results obtained will be afforded. Pasteurization will also receive attention.

Butter-Making. Several latest style cream separators will furnish practice in the removal of cream from milk. A combined churn, a trunk churn, and a table worker will illustrate the operations of churning and working butter. One and two-pound molds, and cutting boxes, will illustrate the methods of finishing. All work in this line is to be performed by students under the direction of the instructors.

Cheese-Making. The manufacture of full cream Cheddar cheese will be considered. Attention will be given to the small sizes known as Young Americas. Some partly skimmed milk cheese will be made to illustrate the effect of the removal of a portion of the cream. The use of various rennet and acid tests will be taught, also the hot iron test. Small vats are used in this work in order that each student may have an opportunity to carry the work through from start to finish. A regular lecture period for the discussion of cheese-making problems will be scheduled.

Shopwork. This will include sufficient practice work in the care and operation of steam boilers and engines, together with discussions of the principles involved, to enable the student understandingly to operate these machines on the farm or in the creamery. There will also be sufficient work in blacksmithing and pipe fitting to prepare the student to do similar repair work and the ordinary plumbing about the dairy or creamery.

Lecture Work. In addition to the practical work outlined above, the student will have the opportunity, each afternoon, to attend three or more lectures in the various courses in soils and soil fertility, stock feeding, stock breeding, veterinary science, forage crops, chemistry, bacteriology, etc., which were briefly described before and which are closely associated with the subject of dairying.

Michel's "Creamery Butter-Making," Decker's "Cheddar Cheese-Making," "Testing Milk and Its Products," by Farrington and Woll, and "Practical Dairy Bacteriology," by Conn will be the principal books used.

Dairy Certificates. An arrangement will be made whereby students who pass in all the work of the Dairy School, and who subsequently, during a period of eight months, demonstrate their ability to manage a factory, will be granted Dairy School Certificates.

HORTICULTURE.

The special horticultural course will open January 11 and continue for six weeks. While it is very desirable that all who enter the work should remain for the full six weeks, nevertheless, those who are unable to spare the full time, are welcome to enter and take as much work as possible.

The work offered is very broad in scope, including Fruit

Growing, Truck Gardening, Nursery Practice, and Landscape Gardening, all of which offer splendid opportunities in our State. The courses consist of lectures, text-book and field exercises, and are designed to give the training that will enable our students to fill the many openings in horticulture or to assist them in developing ten acres of fruit land to the degree that it will return a profit of $2,000 a year. Recent graduates of the short course are meeting with success either as foremen of orchards or practical orchardists.

The course is open to all persons of good moral standing, at least sixteen years of age, who have a common school education. No entrance examinations are required. The only expenses connected with the course are a small entrance fee of one dollar, and an additional five dollars for books.

The equipment of the department is such that this work can be carried on very successfully. There are available two well-lighted lecture rooms, a fully equipped packing laboratory, containing grading and packing tables and apple presses; a grafting laboratory specially adapted for the work; a greenhouse laboratory for instruction in seed germination, transplanting, and making of cuttings. To aid in field work, the department has an orchard containing both young and mature trees of such fruits as apples, pears, cherries, and grapes; over a hundred varieties of strawberries, as well as other small fruits; a small filbert orchard; and a commercial Yellow Newtown orchard. Neighboring apple and peach orchards are also accessible for inspection. For work in Landscape Gardening, the College has a large campus well supplied with the best ornamental trees and shrubs.

The department possesses a splendid library relating to all lines of horticultural activity. These books will be accessible for student use, and in addition, the files of the leading horticultural publications are found on our reading tables.

Every Monday evening the Lewelling Club, which is the horticultural club, holds a meeting from seven to eight thirty. Short-course students are cordially invited to attend. Papers are read, horticultural news is reviewed, and topics of special interest are discussed.

During the course a series of illustrated lectures will be given, representative of the various phases of horticulture in Oregon as well as in other states.

In addition to the regular corps of experts employed by the College, many of the leading horticulturists of Oregon will be present and give addresses on special horticultural topics.

Fruit Growing. A series of lectures, readings, and recitations will be given on the general principles of fruit growing and the special culture of our leading fruits, such as apples, pears, peaches, and grapes, small fruits, and nuts. The various phases of orchard management, such as the proper selection of soil and site, best method of cultivation adapted to each soil type, staking and setting of orchards, pruning, thinning, irrigation, pollination, and the right selection of varieties, will all be carefully covered. The market problems connected with the harvesting, grading, packing, and shipping of fruit, and the selection of the right market, will all come in for attention.

Orchard Practice. This course deals with the practical application in the orchard of the principles of fruit growing discussed in the previous course. Field work will be conducted in such phases as plotting and setting of orchards and berry patches, pruning and spraying. The department has a fine equipment of gasoline, steam, compressed air, and hand sprayers.

Apple Packing. Every fruit grower should be an expert packer. No line of horticulture is more important, nor yet easier to master, than that of apple packing. Thousands of dollars worth of fine fruit is lost each year because improperly and poorly packed. A four-week course is offered in which two hours' practice is given each day, thus giving ample time in which to become proficient. Expert packers will be on hand to give instruction in the most successful methods of grading and packing. The department maintains a packing laboratory fully supplied with all the most approved packing equipment.

Plant Propagation. Many of the failures in fruit growing are caused by the attempt to produce too many varieties; other failures are caused by an improper selection of varieties. In this course, instruction will be given in the proper methods to be used in working over such orchards to a few commercial varieties. Work will also be given along the lines of nursery practice, which will aid those contemplating engaging in such business. The subjects relating to the planting of fruit seed, nursery care, budding and grafting, will be covered both by lectures and practical laboratory and field exercises.

Walnut Grafting. Much time will be devoted to walnut propagation, dealing with the most successful methods of sprouting seed, grafting over young California Black, American Black or seedling stock, and the top-working of the large walnut trees found scattered over the State.

Vegetable Gardening. Attention will be given both to the home garden and to the commercial phases of vegetable growing or truck gardening. The problems dealing with proper locations, soils, modes of cultivation, rotation and succession of crops, harvesting, storing, and marketing, will all be considered. Special attention will be given to the successful culture on a large scale of such crops as celery, onions, asparagus, rhubarb, and tomatoes.

Hot Beds and Cold Frames. Every farmer should have a few sash of hot beds in order to supply the family during winter months with fresh vegetables. There is an abundant opportunity also to realize considerable income from their use near every village and city in Oregon. This course will consist of a class in field exercises dealing with the proper construction and use of cold frames and hot beds.

Landscape Gardening. To the average man and woman, landscape gardening is related solely to the beautifying of large estates and city parks. On the contrary, it has also a very direct bearing on the farm home and the average city or town lot. The money invested in beautifying the farm surroundings is well spent, for it not only adds much financial value to the whole farm but it makes the home a much more desirable one in which to live. Beautiful surroundings will do much to solve some of the problems of country life.

This course deals primarily with the principles of landscape gardening as they are adapted to the country home, school yard, or church. At the same time, those wishing to lay the foundations for a lucrative business in our rapidly growing cities will find this course very helpful.

In addition to the work offered by the Horticultural Department, there will be abundant opportunity given every student to take three or more exercises daily in other departments in such subjects as Plant Diseases and Insect Enemies, Soils, Agricultural Chemistry, and Farm Bookkeeping.

Three books that will be used for classwork are "Principles of Fruit Growing," by L. H. Bailey; "Pruning Book," by L. H. Bailey; "Vegetable Gardening," by S. B. Green. These can be obtained at the College book store.

Crop Pests and Spraying. Instruction in this subject will consist of a series of lectures upon the principal insect, fungus and other pests of cultivated crops. As far as possible these lectures will be illustrated by actual specimens of the pest under consideration and opportunity will be given the students to familiarize themselves with these pests and diseases by study of the specimens.

Instruction will also be given in the preparation and testing of the principal sprays; in fumigation and other methods of controlling insect pests; and if possible, opportunity will be provided to study several types of spraying outfits.

DOMESTIC SCIENCE AND ART.

The course offered in this school will begin January 11 and continue for six weeks.

One of the chief aims in all education should be the advancement of the art of home-making. The woman's part in the home is quite as important as is that of the man. She needs training as truly as he does for the successful performance of her daily duties.

The purpose of the Winter Short Course is to give an opportunity to women who cannot spare more time for school work, but are interested in keeping in touch with the developments of such work as is along the line of their interests and life work, and who wish to get new suggestions and inspiration in the daily work of the home which at times grows wearisome and seems commonplace. New methods of work will raise ideals and increase ability to perform daily tasks intelligently, giving a sense of their true importance and a feeling of power with regard to them. A well-kept home, well-fed, clothed and well-cared-for family, help to bring peace and happiness into a community and to advance civilization.

The courses offered are:

Cookery. Cookery of all common foods with thorough study of the underlying principles involved in the processes of cooking and in the combining of the various foods to give proper nutrition in health, at different ages, and under different health conditions. Attention will be given to methods of preparing foods as attractively as possible; the choice of good materials; the cost or nutritive value; the keeping quality and the best season for purchase. The course will aim to train the mind and hand to work together that the best results may be obtained with speed, through intelligent interest. The highest ideals in work will be maintained in order, neatness, judgment, accuracy, energy, skill, and good spirit.

Practical Applications. Meals—Moderate sized family in small dining rooms; large number; preparation in school kitchen served to number chosen in dining room of the dormitory at regular meal time.

Serving—Serving of meals; Table laying; Care of china, linen and silver; What to serve and how, for breakfast, luncheon, dinner, receptions and teas; Arrangement of the dining room.

Laundry Work. The principles of laundry work are taught through practical application. The subjects considered are:

Treatment of hard water, choice of starch, bluing and soap, laundering of bed and body linen, dresses, waists, shirts, collars and cuffs, flannels and table linen, removal of stains, cleaning of laces and colored embroideries.

Home Economics. Talks on order, neatness and cleanliness as applied to the home and all that pertains to it.

Sewing. Plain sewing, both hand and machine work, drafting and making of under-garments and simple dresses; principles of construction will receive careful attention; also choice of materials and combination of colors will receive consideration.

Dressmaking and Tailoring. Making of costumes for various occasions; originality, beauty and appropriateness in costume, design and excellence in technique will be emphasized. This course will include the making of children's clothes and evening coats.

Students wishing to enter this course must show sufficient ability in sewing to cope with such problems as would naturally present themselves in such a course.

Millinery. Trimming and making of hats for both women and children for usual occasions. An effort will be made in both sewing and millinery to have the student meet her current need by her own work, and in doing so to consider both the constructive and aesthetic aspects.

Basketry and Weaving. The construction of baskets and small pieces of weaving, such as pillow covers and small rugs that may be both useful and decorative in the home.

Topics for Discussion. At regular weekly social meetings: How Can We Advance Social Life on the Farm? Home Reading Clubs. Improvement of Home Grounds. The Country School House and Its Surroundings. Sewing and Cooking for Children of the Country School.

Provision will also be made whereby those taking the course in Domestic Science and Art, and others, may attend such of the courses in the various departments as they may desire. For instance, in the dairy course they may receive instruction in the care of milk and butter-making on the farm; in the horticultural course, instruction in the culture of small fruits, budding, grafting, care of the home garden, and of the home grounds; in poultry husbandry, instruction in the characteristics of the various breeds of fowls and their handling for profit; in bacteriology, instruction regarding the relation of bacteria to the home; and in fact, any of the other courses herein described may be selected if the student so desires.

Waldo Hall, the Girls' Dormitory. Comfortable room and board can be had in the girls' dormitory. Room fee for the six weeks, $2.00. Table board, $3.50 per week.

MECHANIC ARTS.

Three courses are offered in Mechanic Arts. These courses extend through six weeks and are practicums or laboratory courses where the student actually performs the work, receiving instructions in principles and methods involved at the same time.

It is the desire of those in charge, to make these courses helpful to persons who, for any reason, cannot take the more extensive work offered in the regular College courses.

While the time allotted is short, it is hoped that it may be fully utilized by taking up only such parts of the subject as will be of the most benefit to the student.

Woodwork. The purpose of this course is to give instruction in the care and use of woodworking tools, as well as in the elementary principles of carpentry.

To those who are not already familiar with such matters, instruction and practice will be given in sharpening chisels, planes and other edge tools, in filing and setting saws and in the use of the carpenter's square in framing braces, rafters, hips, etc.

Practical mechanics, who already have a working knowledge of hand tools, may obtain instruction in band sawing, jig sawing, wood turning and work on the moulder.

The time required for this course is two consecutive periods daily.

Blacksmithing. This course is offered to those who desire to learn how to make simple repairs and improvements about the farm and shop.

Instruction is given in building and managing a forge fire, in bending, forging and welding iron, making and threading bolts and nuts, also in making and tempering punches and cold chisels.

The full course requires attendance during two consecutive periods daily.

Mechanical Drawing. It is the purpose of this course to aid those who desire to obtain sufficient knowledge to enable them to make rough plans of buildings, or drainage systems, or sketches of machinery, as well as to read intelligently complete drawings.

No costly or elaborate set of instruments will be required for this work. The purpose of the course is to meet the requirements of the farmer or mechanic rather than those of the engineer.

Time required, two periods daily.

Surveying and Road Construction. At the recent sessions of President Roosevelt's Country Life Commission in Portland, no subject received more consideration than did country roads. Throughout the discussions, the opinion was repeatedly expressed by the farmers and others present, that one of the most essential requirements for better rural conditions is better public highways.

Realizing the fundamental importance of this subject, the Oregon Agricultural College offers a four-week course in surveying and road construction. The course will be adapted to the needs of farmers and road officials. The work will be divested, as far as possible, of all technicalities and may be taken by anyone with a good working knowledge of arithmetic. The course will consist of about six to eight lectures, accompanied by mimeograph notes, on the simple problems of land and drainage surveying, such as measuring and computing areas, checking descriptions, surveying and establishing grades for drains, etc. The instruction will be confined to such problems as may be solved by the methods of arithmetic but which cover a wide range of useful application on the farm. The United States system of land surveys will be carefully considered, together with such practical information on the same as every land owner ought to have.

The instruction in the class room will be supplemented by practical work in the field, where the student will construct and use such simple instruments as may be necessary.

Two hours per week.

The course in Road Construction will follow in a general way Baker's "Roads and Pavements." Other authorities, including the literature supplied by the office of road inquiry of the Department of Agriculture and various state publications, will be freely drawn upon and used.

Earth, gravel and broken stone roads will each be studied. Drainage and its importance to highway construction, including methods of drainage, carrying capacity of tile, manner of laying tile drains, determining proper grades for drains, etc., will be carefully studied. The effect of grade upon traffic for different kinds of road, the effect of rise and fall, crown, rolling, manner of applying the road surfacing material, etc., will all be considered. Also, methods of repair and maintenance will be given due consideration. Every effort will be made to make this course practical and useful.

Three hours per week.

All students registered for the above course will be entitled to take such work as may be desired in the other short courses. Also, students in the other short courses may take all or any part of the above described work if desired.

CATALOGUE OF STUDENTS.

(Key to the abbreviations following students' names: Agri.—Agriculture; D. S.—Domestic Science and Art; C. E.—Civil Engineering; Elec.—Electrical Engineering; Mech.—Mechanical Engineering; Mech. Arts—Mechanic Arts; Min.—Mining Engineering; Com.—Commerce; Phar.—Pharmacy.)

GRADUATES:

Name.	Course.	Postoffice.	County.
Ralph Wilmer Allen	Agri.	Rickreall	Polk
Walter Rawalt Baker	Elec.	Salem	Marion
Renton Kirkwood Brodie	Agri.	Lents	Multnomah
Lyman Albert Bundy	Phar.	Moscow, Idaho	
Conrad Christiansen	Elec.	Toledo	Lincoln
Herbert Edward Cooke	Min.	The Dalles	Wasco
Bertha Davis	D. S.	Corvallis	Benton
Glen De Haven	Agri.	Dallas	Polk
Frederic Clark Ewing	Agri.	Oswego	Clackamas
William Yates Farnsworth	Mech.	Beaver City	Utah
Helen Margaret Gilkey	Agri.	Montesano, Washington	
Samuel Herman Graf	Elec.	Portland	Multnomah
Frederick Llewellyn Griffin	Agri.	Canby	Clackamas
John Edward Hanny	Mech.	Oregon City	Clackamas
Laura Hill	Agri.	Hood River	Hood River
Joseph William Howard	Phar.	Prineville	Crook
Vesta Kerr	D S.	Corvallis	Benton
William Amile Schoel	Elec.	Portland	Multnomah
Herman Vance Tartar	Agri.	Corvallis	Benton
Albert Pearl Tedrow	Elec.	Corvallis	Benton
Ralph Infield Thompson	C. E.	Heppner	Morrow
Clarence Cornelius Vincent	Agri.	Corvallis	Benton

SENIORS:

Name.	Course.	Postoffice.	County.
Thomas John Autzen	Elec.	Hoquiam, Washington	
Delle May Baldwin	Com.	Corvallis	Benton
Charles Irvin Barnes	Phar.	Elgin	Union
Jesse James Beaty	Elec.	Ballston	Polk

Name.	Course.	Postoffice.	County.
Orren Beaty	Agri.	Ballston	Polk
Frank Richard Becker	Elec.	Philomath	Benton
Sadie Bell	D. S.	Beaver City, Nebraska	
William Frank Bell	Elec.	Beaver City, Nebraska	
Charles F. Bendshadler	Elec.	Elgin	Union
George Henry Bendshadler	Elec.	Elgin	Union
Albert Francis Bernard	Mech.	Beaverton	Washington
Walter Bjerregaard	C. E.	Ephraim, Utah	
Arthur Stephen Blanchard	Elec.	Marshfield	Coos
Charles Edwin Bowen	Min.	Oysterville, Washington	
Robert Edgar Bower	Agri.	Silverton	Marion
Elmer Clarence Buchanan	Elec.	Corvallis	Benton
Philip Harrison Cale	Com.	Albany	Linn
Edward Cleveland Calloway	Phar.	Ontario	Malheur
Claud Franklin Chambers	Com.	Corvallis	Benton
Alexander Kesterin Chapman	Elec.	Grants Pass	Josephine
Roy Ross Clark	Min.	Portland	Multnomah
Malcolm Robert Cox	Min.	Schurz, Nevada	
George Albert Cross	Elec.	Dundee	Yamhill
Elmer Raymond Crowe	Elec.	Lorane	Lane
Harvey William Currin	Agri.	Ione	Morrow
Linnie Edith Currin	D. S.	Ione	Morrow
Nettie Elsie Currin	D. S.	Heppner	Morrow
Gertrude Davidson	D. S.	Ione	Morrow
James Davis Dobbin	Agri.	Union	Union
Hamilton Keys Donnelly	C. E.	Richmond	Wheeler
Earl Irvington Donelson	Elec.	Hillsboro	Washington
Ella Belle Dunlap	Phar.	Shedd	Linn
Joseph Earle Edwards	Elec.	Monroe	Benton
Velma Ethel Edwards	D. S.	Mayville	Gilliam
Georgia Virginia Ewing	D. S.	Oswego	Clackamas
Henry Pervine Fisher	Agri.	Haines	Baker
Walter Carl Galloway	C. E.	Hillsboro	Washington
Jesse Smart Gilkey	Elec.	Montesano, Washington	
Bernard John Groth	Elec.	Dundee	Yamhill
Frank Edward Hall	Agri.	Milwaukie	Clackamas
Sylvester Benjamin Hall	Agri.	Cleone	Multnomah
Violet Irene Hancock	Com.	Cove	Union
Ethel Elnora Harpole	D. S.	Junction City	Lane
Gretta Harrington	D. S.	Corvallis	Benton
Charles Sinclair Harris	Elec.	Vale	Malheur
Cora Hawley	Com.	Monroe	Benton
William Hensley	C. E.	Troutdale	Multnomah
Ruth Jeannette Hess	D. S.	Portland	Multnomah
Alicia Pearl Horner	Com.	Corvallis	Benton
Charles Harry Howard	Elec.	Bridal Veil	Multnomah

Name.	Course.	Postoffice.	County.
Callie Alma Howe	Com.	Sheridan	Yamhill
Ernest Allsworth Hudson	C. E.	Milton	Umatilla
Charles Darwin Hull	Elec.	Cottage Grove	Lane
Georgia Irvine	D. S.	McMinnville	Yamhill
Carl Thomas Jefferson	Com.	Weiser, Idaho	
John Jacob Karstetter	Mech.	Silverton	Marion
Ivan Earl Kerr	Com.	Ora, Idaho	
Robert Marriner Kerr	C. E.	Ora, Idaho	
James Koeber	Agri.	Sherwood	Washington
William George Lane	Com.	Harrisburg	Linn
Marshall James Lazelle	Agri.	Oregon City	Clackamas
Charles Herbert Leonard	Elec.	Sheridan	Yamhill
Fred Deninger Luse	Mech.	Lents	Multnomah
Perry Harlan McAlexander	Agri.	Mountain View, California	
Nelson Felde McColl	Elec.	Gresham	Multnomah
Russell Alfred McCully	Agri.	Hood River	Hood River
Edmund Samuel McElligott	Agri.	Ione	Morrow
Alice Marie McGinnis	Com.	Moro	Sherman
Fred Marshall McHenry	Com.	Corvallis	Benton
Frank Lester Michelbook	Com.	McMinnville	Yamhill
Kate Irene Moore	Com.	Echo	Umatilla
Donald Fain Morgan	Elec.	Portland	Multnomah
Roscoe Neal	C. E.	Baker City	Baker
George Allen Nelson	Agri.	Scappoose	Columbia
Evaline Newkirk	D. S.	Oregon City	Clackamas
Wintha Rudolph Palmer	Agri.	Dallas	Polk
Jesse J. Peddicord	Min.	Portland	Multnomah
Maymie O'Cleva Peery	D. S.	McMinnville	Yamhill
Philip Oliver Pelland	Mech.	St. Paul	Marion
Ralph Hillar Pierce	Mech.	Harrisburg	Linn
Bessie Evalena Pogue	D. S.	Ontario	Malheur
Lois Lucinda Pratt	D. S.	Corvallis	Benton
Roy Wilbur Price	C. E.	Scappoose	Columbia
Robert Henry Rodgers	Mech.	Portland	Multnomah
Modesta Rosendorf	Com.	Corvallis	Benton
Edna Mae Russ	D. S.	Ashland	Jackson
Charles Frederic Schirmer	Min.	Oregon City	Clackamas
Alfred Schoel	Phar.	Albany	Linn
Claude Schrack	Agri.	Tangent	Linn
Arthur Byron Smith	Elec.	Newberg	Yamhill
Neil Triston Smith	Elec.	Burns	Harney
Rae Snow	D. S.	Boise, Idaho	
Mulk Raj Soi	Elec.	Batala, India	
Fred Lloyd Spires	Elec.	Myrtle Point	Coos
Helen Maud Sprague	D. S.	Oregon City	Clackamas
Marion Sproat	Com.	Hood River	Hood River

Name.	Course.	Postoffice.	County.
Wilda Starr	D. S.	Albany	Linn
Cedric Hiram Stone	Agri.	Cleone	Multnomah
John Curtis Strebin	C. E.	Troutdale	Multnomah
Herbert George Suttle	Agri.	Portland	Multnomah
William Dantzler Sutton	Elec.	Portland	Multnomah
Durland Orville Taggart	Elec.	Vale	Malheur
Zack Lester Taylor	Com.	Corvallis	Benton
Aura Amarilla Thomson	D. S.	Echo	Umatilla
Jesse Almond Tiffany	Agri.	Portland	Multnomah
Ina Content True	Com.	Mason City, Iowa	
Pearl Elnora Vincent	D. S.	Corvallis	Benton
Homer Stacy Wall	C. E.	Early	Sherman
Ward Percy Webber	C. E.	Portland	Multnomah
Pearl Williams	Phar.	Jordan Valley	Malheur
Elmer Benton Williamson	Com.	Albany	Linn
Robert Vernon Williamson	Agri.	Wells	Benton
Frank Jackson Wilson	Phar.	Canyonville	Douglas
Martha Delilah Winniford	D. S.	Wren	Benton
Gilbert Fayette Winslow	Min	Oysterville, Washington	
Ralph William Worstell	Elec.	La Grande	Union
Henry Roderick Zimmerman	Elec.	The Dalles	Wasco
Peter Chris Zimmerman	Elec.	North Yamhill	Yahmill

JUNIORS:

Name.	Course.	Postoffice.	County.
Albert G. Emil Abendroth	Min.	Portland	Multnomah
Harry Asbahr	Agri.	Cornelius	Washington
U. Sheldon Attix	Min.	Portland	Multnomah
Torrey Lynn Austin	C. E.	Liberty, Idaho	
Almont Arlie Bailey	C. E.	Portland	Multnomah
Harold Harrison Barbur	For.	Portland	Multnomah
Grace Monemia Bath	D. S.	Hillsboro	Washington
Henry Bergman	Mech.	Gardiner	Douglas
Everett Monroe Billings	Elec.	Union	Union
Otto Karl Blackaby	Mech.	Ontario	Malheur
Hedwig Bleeg	D. S.	Hillsdale	Multnomah
Latimer Hobart Booth	Elec.	Mt. Hood	Hood River
Harry David Bowman	Elec.	Hillsboro	Washington
LeRoy Breithaupt	Agri.	Clackamas	Clackamas
Urie Eugene Brown	Min.	Shedd	Linn
Chloe Allen Burris	Elec.	Fairbanks, Alaska	
Arthur William Burton	Phar.	San Francisco, California	
Harry Palmer Cady	Elec.	Holbrook, Nebraska	
Elmer Dewitt Calvin	C. E.	Amity	Yamhill
Agnes Dorothy Campbell	D. S.	Monmouth	Polk

Name.	Course.	Postoffice.	County.
Emil Elmo Carroll	Phar.	Union	Union
Edith Hazel Casteel	Com.	Yaquina	Lincoln
Mary Enid Cate	D. S.	Hillsboro	Washington
Bessie Irene Chipman	Com.	The Dalles	Wasco
Bliss Lucine Clark	Agri.	Hood River	Hood River
Oliver Kenneth Cole	Elec.	Turner	Marion
Frank Wood Connell	C. E.	Hillsboro	Washington
Grace Elizabeth Connell	D. S.	Hillsboro	Washington
Bertha Leona Cramer	Com.	Corvallis	Benton
Homer Morton Cross	Agri.	Hebo	Tillamook
Wren Clark Crews	C. E.	Klamath Falls	Klamath
Howard Cunningham	C. E.	Ft. Klamath	Klamath
John Wernier Darling	Agri.	Baker City	Baker
Robert Leroy Davidson	C. E.	Union	Union
Mary Louvia Davis	Com.	Albany	Linn
Clarence Cummings Dickson	Agri.	Loleta, California	
Minnie Diven	Com.	Vale	Malheur
Anna Leta Edington	D. S.	Athena	Umatilla
Belle Boothe Edwards	D. S.	Monroe	Benton
Bertha Beulah Edwards	D. S.	Monroe	Benton
Harry Evans	Min.	Bourne	Baker
Fred Edgerton Ewart	Elec.	Portland	Multnomah
Alvin Finlay	C. E.	Portland	Multnomah
Russell Fleser	Elec.	Union	Union
Nellie Evelyn Fletcher	Com.	Portland	Multnomah
Robert Edmond Fletcher	Elec.	Ontario	Malheur
Walter Clayton Gagnon	Elec.	Roseburg	Douglas
Carl Francis Galligan	Agri.	Hood River	Hood River
Joseph Allen Ganong	C. E.	Oregon City	Clackamas
Viola Gardner	Com.	Corvallis	Benton
Bessie Garrett	Phar.	Ashland	Jackson
Vincent Paul Gianella	Elec.	Honcut, California	
Beulah Gustavia Gilkey	D. S.	Montesano, Washington	
Raymond Chase Gleason	Elec.	Sumpter	Baker
Wallace Going	Elec.	Portland	Multnomah
Julius Gordon	Elec.	Portland	Multnomah
Flora Hassett	D. S.	Garneill, Montana	
Ralph Hamilton Hawley	C. E.	Monroe	Benton
Clyde Crawford Hayden	Elec.	Alsea	Benton
Helen Heath Hays	D. S.	Tillamook	Tillamook
Lyle Valington Hendricks	Phar.	McMinnville	Yamhill
Bertha Emma Herse	D. S.	Corvallis	Benton
Beulah Grace Hewitt	Com.	Junction City	Lane
Merle George Howard	Phar.	Monroe	Benton
Leland Barton Howey	Com.	Coquille	Coos
Zoa Irwin	D. S.	Estacada	Clackamas

Name.	Course.	Postoffice.	County.
Laura Estella Jackson	D. S.	Lorane	Lane
William Flavius Jamison	Elec.	Lewiston, Utah	
Junius Whiteaker Jarvis	Phar.	Eugene	Lane
Elton Irwin Kelly	Elec.	Troutdale	Multnomah
John Frederick Kettles	Phar.	Lents	Multnomah
Richard Percy Landis	Phar.	Albany	Linn
Esther Vestel Leech	D. S.	Moro	Sherman
Donald Lines	Mech.	Albany	Linn
James Rhea Luper	C. E.	Heppner	Morrow
William Lester Marrs	Mech.	Oregon City	Clackamas
Harold Dickson Marsh	Mech.	Portland	Multnomah
Siegfried Maurer	Min.	Eugene	Lane
Fred Samuel McCall	Agri.	Salem	Marion
Max Adam McCall	Agri.	Scio	Linn
Forrest William McGinnis	Agri.	Moro	Sherman
Frederick Emmett McGrew	Com.	Weston	Umatilla
Gertrude McHenry	Com.	Corvallis	Benton
Glenn Kenneth McKenzie	Min.	Kalama, Washington	
Wayne Carl McLagan	Elec.	Tangent	Linn
Cecil Metcalf	Elec.	Portland	Multnomah
Rawla Arnold Miller	Elec.	Athena	Umatilla
Zoe Velma Miller	Phar.	Amity	Yamhill
Jay G. Mitchell	Elec.	Newberg	Yamhill
Charles Lazelle Moore	Elec.	Klamath Falls	Klamath
Jack Muldrick	Min.	Canyon City	Grant
Nellie Lee Naill	D. S.	Hillsboro	Washington
Robert Warrac Nelson	C. E.	LaFayette	Yamhill
Ira Edward Newsom	Phar.	Portland	Multnomah
Howard O'Connor	C. E.	Montague, California	
Fred Eugene Pernot	Elec.	Corvallis	Benton
Jack Francis Pernot	For.	Corvallis	Benton
Ivy Cecil Peterson	Com.	Beaverton	Washington
Edgar George Pickler	Min.	La Grande	Union
John Plankington	Elec.	Dallas	Polk
Joel William Powell	Elec.	Hood River	Hood River
Horace Minor Propst	Elec.	Albany	Linn
Irving Province	Com.	Mitchell	Wheeler
William Fred Raithel	For.	East Lansing, Michigan	
Roy Eugene Rawson	Elec.	Vancouver, Washington	
Jay Merritt Reynolds	Agri.	La Grande	Union
Charles Percy Richards	C. E.	Asotin, Washington	
Katie Maysel Ridgeway	D. S.	Buell	Polk
Ray Harland Roberts	Agri.	Lebanon	Linn
Alvhild Romtvedt	D. S.	Toledo	Lincoln
Gordon Rosendorf	Phar.	Corvallis	Benton
Donald Hefley Rowe	Min.	Portland	Multnomah

Name.	Course.	Postoffice.	County.
Adolph Harry Schmidt	C. E.	The Dalles	Wasco
W. Earle Sears	Phar.	McCoy	Polk
Raymond Seeley	Agri.	Wilsonville	Clackamas
Oliver Park Seim	Mech.	Astoria	Clatsop
William Alvi Sellwood	C. E.	Milwaukie	Clackamas
Holly Henry Siemans	Mech.	Klamath Falls	Klamath
Earl Jackson Silva	Elec.	Rainier	Columbia
Richard William Skibbe	C. E.	The Dalles	Wasco
Frank Benjamin Steen	Agri.	Lebanon	Linn
Mason Goodwin Smith	Elec.	Burns	Harney
Edgar Adolf Sorenson	Elec.	Harrisburg	Linn
Roy Herbert Sprague	Mech.	Oregon City	Clackamas
Leland Hobart Spring	Agri.	Lebanon	Linn
Edison Blaine Stanley	Com.	Lone Rock	Gilliam
Noble Dunshee Stearns	Mech.	Portland	Multnomah
William Thomas Stratton	Phar.	Clear Lake, Utah	
Lester Eugene Stutz	Elec.	Redwood, California	
Samuel Pliny Sutton	Elec.	Portland	Multnomah
Owen Hancock Test	C. E.	Ontario	Malheur
Ruth Thayer	D. S.	Rainier	Columbia
George Henry Thomas	Agri.	Mt. Hood	Hood River
Frank Wilson Thompson	Min.	Burns	Harney
James Jay Thompson	Agri.	Macleay	Marion
Carl Clifton Titus	Mech.	Kingston	Linn
William Alfred Toner	Elec.	Yaquina	Lincoln
Benjamin Blaine Totten	For.	Corvallis	Benton
Stanley Everett Tripp	Min.	Hood River	Hood River
Roy Clarke True	Elec.	Corvallis	Benton
Evans Craig Varner	Elec.	Tillamook	Tillamook
Chester Andrus Vincent	C. E.	St. Johns	Multnomah
John Oscar Vines	Elec.	Vale	Malheur
Laura Elsie Van Meter	D. S.	Hoskins	Benton
Edwin Wheeler Wallace	Elec.	Independence	Polk
Edna Bernice Watkins	Com.	Nevada, Iowa	
Arthur Marion Weatherford	Com.	Dayton, Washington	
Mattie Loraine Wells	Phar.	Ashland	Jackson
Clarence Theodore West	Elec.	Rock Creek	Gilliam
George Ernest Whitcomb	Min.	Foster	Linn
Floyd James Williams	Elec.	Roselawn, California	
Lena May Wilson	D. S.	Brownsville	Linn
Sinclair Albert Wilson	For.	Linnton	Multnomah
Carl Wolff	Mech.	Portland	Multnomah
Alfred Mason Woodruff	Agri.	Cleveland	Douglas
George Samuel Zimmerman	Agri.	Yamhill	Yamhill

SOPHOMORES:

Name.	Course.	Postoffice.	County.
Thomas Sidney Abbott	Min.	Corvallis	Benton
James Quincy Adams	Agri.	Ashland	Jackson
Frances Alva Aitken	D. S.	Portland	Multnomah
William Cawston Allen	Mech.	Portland	Multnomah
Chancie Jacob Allison	Elec.	Bridal Veil	Multnomah
Roy Anderson	Elec.	Tillamook	Tillamook
Pearl Augusta Angell	D. S.	Haines	Baker
Charlie Eric Armstrong	Mech.	Corvallis	Benton
Albert Asbahr	Agri.	Cornelius	Washington
Edward James Atckison	Min.	Portland	Multnomah
Hazel Emma Baker	Com.	Corvallis	Benton
Mabel Mary Baker	D. S.	Albany	Linn
James Linwood Batchelder	Agri.	Hillsboro	Washington
Oliver C. Beals	Elec.	Drain	Douglas
Walter Boone Beasley	Elec.	Irrigon	Morrow
Leslie Beaty	Agri.	Ballston	Polk
Beulah Beeler	D. S.	Jewell, Kansas	
Louis Billings	Phar.	Union	Union
William Cheadle Borchers	Agri.	Portland	Multnomah
Roy Borden	Elec.	Newport	Lincoln
Harvey Wilburn Bradley	Elec.	Beaverton	Washington
Rolstyn Daniel Bridges	Com.	Portland	Multnomah
Cecile Marie Brogden	D. S.	Hillsboro	Washington
Edith Stanley Brogden	D. S.	Hillsboro	Washington
Earl Chase Brooks	Mech.	Corvallis	Benton
Walter L. Broomhall	Com.	Baker City	Baker
Frank Ross Brown	Agri.	Camas, Washington	
Saxon Berners Bruce	Elec.	Airlie	Polk
Thomas Leroy Burns	Com.	Gold Beach	Curry
Gorman Reed Burtner	Phar.	Lowden, Washington	
Ralph Harlan Cady	Phar.	Holbrook, Nebraska	
Merlin Taylor Calif	C. E.	Baker City	Baker
William Robert Carlson	C. E.	Bridal Veil	Multnomah
Darwin Carnegie	Elec.	Albany	Linn
Myrtle Cartwright	Com.	Junction City	Lane
Roxana Cate	D. S.	Portland	Multnomah
James Marion Caughell	C. E.	Gold Beach	Curry
Orren Kerry Charles	Com.	Portland	Multnomah
William Clark	Agri.	Hood River	Hood River
William Ben Cochran	Agri.	Monument	Grant
Daniel Tighe Coffman	Agri.	Chehalis, Washington	
Allen Henry Collette	Phar.	Portland	Multnomah
Benjamin Harrison Cooper	Elec.	Corvallis	Benton
Roy Francis Cooper	Phar.	Corvallis	Benton

Name.	Course.	Postoffice.	County.
Berthel Claude Copple	Agri.	Hood River	Hood River
Mabry Zerilda Currin	D. S.	Heppner	Morrow
Lottie Davey	D. S.	Boise, Idaho	
Harold Leslie Davis	Mech.	Hoquiam, Washington	
Wilbert L. Davis	Phar.	Portland	Multnomah
Robert Clyde Day	Mech.	La Grande	Union
Charlie Despain	Elec.	Pendleton	Umatilla
Percy Lucas Dodd	Elec.	Falls City	Polk
Alexander William Dodge	Agri.	Pasadena, California	
Luther Andy Duckworth	Min.	Sumpter	Baker
Walter du Moulin	Elec.	Corvallis	Benton
John H. Dunham	Elec.	San Francisco, California	
Clifford Dunn	Min.	Cloverdale	Tillamook
William Connell Dyer	C. E.	Salem	Marion
Clarence Herbert Eagy	Com.	Albany	Linn
Mary Lillian Ernest	D. S.	Vernon	Lincoln
Howard James Eberly	For.	La Grande	Union
Otto Herman Elmer	Agri.	Mulino	Clackamas
J. Oscar Enberg	Min.	Baker City	Baker
Jackson K. Fairchild	Elec.	Portland	Multnomah
Eliza Josephine Floyd	Com.	Corvallis	Benton
Thomas Edward Foster	Phar.	Athena	Umatilla
Robert Pierce Francis	Min.	Athena	Umatilla
Claud Freeman	C. E.	Ashland	Jackson
Charles Augustus French	Elec.	Corvallis	Benton
Vivian S. French	Elec.	Roseburg	Douglas
Bradford Fowles	Elec.	Mountaindale, Washington	
Abner Jared Fuller	Elec.	Corvallis	Benton
Ruby Ethel Galloway	D. S.	Hillsboro	Washington
Albert P. Gibson	Elec.	Pendleton	Umatilla
Herbert James Gilkey	C. E.	Grants Pass	Josephine
Harold Gill	For.	Portland	Multnomah
Earl E. Gilliam	Com.	Heppner	Morrow
Roy Fred Ginther	Phar.	Corvallis	Benton
John Benjamin Gooch	Phar.	Shellburn	Linn
Agnes Maud Goodrich	D. S.	Dayton	Yamhill
Elmer Ellsworth Goshorn	C. E.	Lents	Multnomah
Frank P. Gowan	C. E.	Burns	Harney
James William Graham	Mech.	Gardiner	Douglas
Merril Eugene Groshong	Phar.	Enterprise	Wallowa
Lorain Walter Haller	Elec.	Telocaset	Union
James Harrison Haight	Elec.	Little Shasta, California	
Roswell Byron Hamilton	Phar.	Burns	Harney
Orlando B. Hardy	Agri.	Bend	Crook
Robert Harlow	C. E.	Portland	Multnomah
George L. Harper	C. E.	Grants Pass	Josephine

Name.	Course.	Postoffice.	County.
Ralph B. Harrington	Elec.	Falls City	Polk
Lee Marion Harris	Elec.	Vale	Malheur
Willamette N. Harris	Agri.	Oregon City	Clackamas
Charles M. Hartsock	Mech.	Albany	Linn
Elmo Yeaton Haskell	C. E.	Central Point	Jackson
Vera Etta Haskell	D. S.	Port Orchard, Washington	
William Dexter Haskell	Mech.	Port Orchard, Washington	
George Hastings	Min.	Portland	Multnomah
Bird Norman Hawley	Agri.	Star	Lane
Philo Benjamin Hawley	Agri.	Mineral	Lane
Charles Heid	Agri.	Fairfield, Illinois	
Melville Herren	Mech.	Portland	Multnomah
John Everard Hiatt	Agri.	Oregon City	Clackamas
John William Hiatt	Com.	Heppner	Morrow
Carl Hersey	Elec.	Portland	Multnomah
Ted Holden	Min.	Portland	Multnomah
Mervin Herbert Horton	Phar.	Burns	Harney
Claude Elgin Howard	Com.	Bridal Veil	Multnomah
George Clarence Howard	C. E.	Corvallis	Benton
Chester Carl Howe	C. E.	Sheridan	Yamhill
Charles Henry Hoyt	Mech.	Jefferson	Marion
Roy Alton Huber	Elec.	Scio	Linn
Edith Olwen Hughes	D. S.	Grants Pass	Josephine
Clarence Lloyd Jamison	Min.	Portland	Multnomah
Russell Samuel Jeffreys	Min.	Portland	Multnomah
Andrews Marimus Jeppesen	Mech.	Portland	Multnomah
Alfin Johnson	C. E.	Seaside	Clatsop
Zeta Alma Johnson	D. S.	Corvallis	Benton
Alva W. Jones	Com.	Heppner	Morrow
George Harold Jones	Min.	Portland	Multnomah
Glen C. Jones	Com.	Heppner	Morrow
Walter Keck	C. E.	Hammond	Clatsop
Leona Leonora Kerr	D. S.	Corvallis	Benton
Roy Belding Knapp	Mech.	Camas, Washington	
Angie Charlotte Kyle	Com.	Monroe	Benton
Horace Landfare	Min.	Portland	Multnomah
Myrtle Edna Lay	D. S.	Molalla	Clackamas
Edward Rudolph Leibner	Com.	Albany	Linn
Erwin Bertran Lemon	Com.	Grass Valley	Sherman
Harvey Jacob Lickel	For.	Spearfish, South Dakota	
Harry Arthur Lindgren	Agri.	Melrose	Douglas
Raymond Stewart Loosley	Agri.	Ft. Klamath	Klamath
Fern Loughridge	Com.	Hedrick, Iowa	
Carl Marion Maloney	C. E.	McMinnville	Yamhill
Alvin Mattson	C. E.	Astoria	Clatsop
Joe Linzy McAllister	C. E.	North Yamhill	Yamhill

Name.	Course.	Postoffice.	County.
Melville Thomas McAllister	C. E.	North Yamhill	Yamhill
Margaret McCall	D. S.	Scio	Linn
Iva Belle McGinnis	Com.	Moro	Sherman
Ross McIntosh	Mech.	Cavalier, North Dakota	
Leroy Roderick McKenzie	Elec.	Summerville	Union
Howard Elmer McLean	Elec.	Island City	Union
James Stewart McMahon	C. E.	Corvallis	Benton
Henry William McRobbie	E. E.	Leadville, Colorado	
Fred Robert Meyer	Com.	Salem	Marion
Samuel Michael	Com.	Baker City	Baker
Lester Hawley Miles	C. E.	Portland	Multnomah
Watson Boone Miles	Com.	Lostine	Wallowa
Fred A. Miller	Mech.	Montavilla	Multnomah
George Henry Miller	Phar.	Corvallis	Benton
John Rowland Mires	Min.	Ellensburg, Washington	
Eliot Maxwell Mitchell	C. E.	Portland	Multnomah
Guy Ernest Mitchell	Com.	Joseph	Wallowa
May Mitchell	D. S.	Newberg	Yamhill
Henry Clay Montgomery	C. E.	Latourelle	Multnomah
Frank M. Moore	Phar.	Ashland	Jackson
Harry Beaumont Moore	Phar.	Portland	Multnomah
Kate Ray Moore	Com.	Logan, Utah	
Otto Nelson Moore	Elec.	Portland	Multnomah
Bertha Morgan	D. S.	Ione	Morrow
Ira Monroe Morgan	Agri.	Ione	Morrow
Osborn Morrow	Mech.	Portland	Multnomah
Reuben George Murray	C. E.	Portland	Multnomah
Charles Leroy Nelson	Mech.	Scappoose	Columbia
Ivar Emanuel Nelson	Elec.	Ione	Morrow
Samuel James Newsom	Phar.	Prineville	Crook
Arthur Nickerson	C. E.	Springfield	Lane
Adolph Nilsson	For.	Portland	Multnomah
Gertrude Frances Nolan	Com.	Corvallis	Benton
Joseph John Nys	Com.	Mt. Angel	Marion
Arthur O'Connor	C. E.	Montague, California	
Robert Brackett Olp	Agri.	Prairie City	Grant
Bernhard Olson	Elec.	Milwaukie	Clackamas
Earl Arney Olson	Com.	Warrenton	Clatsop
William Herbert Ost	C. E.	Portland	Multnomah
Wells Oviatt	Elec.	Corvallis	Benton
Ada Park	Com.	Corvallis	Benton
Charles B. Park	Mech.	Corvallis	Benton
Lawrence William Park	Mech.	Corvallis	Benton
Thomas Reed Parsons	Phar.	Yamhill	Yamhill
Blaine Patterson	Phar.	Yamhill	Yamhill
Frank Richard Pendergrass	Elec.	Amity	Yamhill

Name.	Course.	Postoffice.	County.
Louis Clifton Perry	C. E.	Portland	Multnomah
Thomas Jefferson Pettit	Elec.	Monmouth	Polk
Henry John Pfandhoefer	Elec.	Falls City	Polk
Lige Edward Phillips	Min.	Salem	Marion
Myra Belva Pierce	Com.	Corvallis	Benton
Carrie Maude Pimm	D. S.	Philomath	Benton
Philip Ray Poff	C. E.	St. Johns	Multnomah
Elmo Rex Porter	Elec.	Ephrata	Washington
John Frederic Porter	Phar.	Medford	Jackson
S. Raymond Potter	Min.	Indianapolis, Indiana	
Herman Lair Prather	Mech.	Buena Vista	Polk
Minnie Price	D. S.	Kings Valley	Benton
Herman Peter Prinz	Elec.	The Dalles	Wasco
Clifford Wayne Raber	Agri.	Corvallis	Benton
Elta Marie Raber	D. S.	Corvallis	Benton
Helen Lavina Raber	D. S.	Corvallis	Benton
Alvin Lester Raines	C. E.	Lacomb	Linn
Boyce Rawlins	C. E.	Salt Lake, Utah	
Leo Walter Reber	Com.	Portland	Multnomah
Marcella Reed	D. S.	La Grande	Union
Thomas Reierson	Mech.	Portland	Multnomah
Ralph Waldo Rees	Agri.	Springbrook	Yamhill
William Oscar Reith	Agri.	Astoria	Clatsop
Denzel Lee Ridgeway	Mech.	Buell	Polk
Lester Clifford Rhodes	Min.	Independence	Polk
George Rieben	Agri.	Banks	Washington
Lillie Riggs	Phar.	Vancouver, Washington	
Emory Douglas Roberts	C. E.	Gresham	Multnomah
Harrison Morton Roberts	Com.	Eugene	Lane
Emily Fern Rodgers	D. S.	Portland	Multnomah
Cecil Rowland	D. S.	Corvallis	Benton
LeRoy Comstock Rulifson	C. E.	Salem	Marion
Lawrence George Russell	C. E.	Wessington Springs, S. D.	
Robert Schulz	C. E.	Vancouver, Washington	
Floyd Willis Scott	Agri.	Milwaukie	Clackamas
Ruth Scovill	Phar.	Grants Pass	Josephine
Ralph Seely	Elec.	Woodburn	Marion
Guy A. Shadduck	Elec.	Heppner	Morrow
Obil Shattuck	C. E.	Ft. Klamath	Klamath
Carl Herman Sigglin	C. E.	Portland	Multnomah
Neil L. Simons	Min.	Portland	Multnomah
Maurice E. Smead	Com.	Heppner	Morrow
Genevieve Lucile Smith	D. S.	Corvallis	Benton
Hiram Chester Smith	C. E.	Newberg	Yamhill
Lester Charles Smith	C. E.	Grays River, Wash.	
Orilla M. Smith	D. S.	Springfield	Lane

Name.	Course.	Postoffice.	County.
Philip Smith	Min.	Portland	Multnomah
Robert L. Smith	Mech.	Portland	Multnomah
Ruth McNary Smith	D. S.	Marshfield	Coos
Thurman J. Starker	For.	Portland	Multnomah
Ruby Starr	D. S.	Corvallis	Benton
Tracy McWilliam Starr	Mech.	Bellfountain	Benton
Charles E. Stricklin	C. E.	Olex	Gilliam
Fred Jacob Stutz	C. E.	Redwood City,	California
John Wyatt Surry	Agri.	Lyons	Linn
Fred Marshall Suver	Elec.	Suver	Polk
Lawrence Edgar Swan	C. E.	Hubbard	Marion
Charles Claude Thompson	Agri.	Hood River	Hood River
William Jeptha Thornton	Phar.	Roseburg	Douglas
Genevieve Tillery	D. S.	Independence	Polk
William Roy Tompkins	Mech.	Athena	Umatilla
Fred V. Tooley	Agri.	Portland	Multnomah
George Robert Tripp	C. E.	Corvallis	Benton
Leighton Jay True	Agri.	Mason City, Iowa	
Herman Christus Tschanz	Elec.	Eugene	Lane
Mabel Tuttle	Phar.	Summerville	Union
Lee M. Unruh	Min.	Salem	Marion
Albert Henry Utzinger	C. E.	Seaside	Clatsop
Otto George Voss	Mech.	Astoria	Clatsop
Ray Marcus Waltz	Phar.	Monroe	Benton
Ora Weaver	Com.	Myrtle Creek	Douglas
Lincoln Ward Wheeler	Agri.	San Diego, California	
Nell Whittemore	D S	Pendleton	Umatilla
Ruby Whittemore	D S	Pendleton	Umatilla
Louis Wiegel	Min.	Indianapolis, Indiana	
Omar Blanchard Willey	Phar.	Ashland	Jackson
Mabel Gertrude Williamson	D. S.	Wells	Benton
Amos Rex Willits	Agri.	Persist	Jackson
Wiliam David Winniford	C. E.	Wren	Benton
Earl Withycombe	C E	Corvallis	Benton
Frank Wilbur Wright	Elec	Portland	Multnomah
Joseph Benjamin Yoder	Mech.	Hubbard	Marion
Dorris Shelby Young	Agri	Sherwood	Washington

FRESHMEN:

Name.	Course.	Postoffice.	County.
Lewis Henry Alexander	Elec.	Portland	Multnomah
Ethel Miriam Allen	D. S.	Bend	Crook
Lawrence Fremont Allen	Phar.	Lostine	Wallowa
Carl Nathaniel Anderson	Min.	Portland	Multnomah
Esther Grace Anderson	D. S.	Portland	Multnomah

Name.	Course.	Postoffice.	County.
Isaac Milton C. Anderson	Agri.	Monument	Grant
Wilbur DeWitt Andrews	Mech.	Oregon City	Clackamas
Hugh Barkeley Antrim	C. E.	Hopewell	Yamhill
Samuel Hubbell Arbuthnot	Agri.	Portland	Multnomah
Alston Conway Archbold	Elec.	Hillsboro	Washington
William Anthony Armstrong	Agri.	Corvallis	Benton
Margaret Mary Asbahr	D. S.	Cornelius	Washington
William R. Axe	Agri.	Prairie City	Grant
Harry Henry Babler	Agri.	Oregon City	Clackamas
Myron Harley Baldwin	Phar.	Portland	Multnomah
James Edwin Bannister	C. E.	Parkplace	Clackamas
John W. Barcroft, Jr.	Phar.	Newberg	Yamhill
Esme Marguerite Bassett	D. S.	Springfield	Lane
Alice Amanda Bateman	D. S.	Gales Creek	Washington
Roy Arthur Baynard	Phar.	Silverton	Marion
Harry Maurice Beck	Elec.	Corvallis	Benton
Orval Beckley	Elec.	Ellston	Douglas
John Harrison Belknap	Elec.	Corvallis	Benton
Lloyd Vernon Bell	Com.	Portland	Multnomah
Orlin James Bell	Elec.	Brownsboro	Jackson
Clyde Clark Benson	Mech.	Portland	Multnomah
Dennis Berry	Mech.	Mt. Tabor	Multnomah
Elsie Mary Bevens	D. S.	Airlie	Polk
Edward Bilyeu	Min.	Athena	Umatilla
Raymond Blackmun	Com.	Baker City	Baker
Robert Godfrey Blomgren	Mech.	Weston	Umatilla
Florence G. Bogle	D. S.	Philomath	Benton
Julia Paulina Bogle	D. S.	Philomath	Benton
Wiliam Doherty Bollons	C. E.	Portland	Multnomah
James Charles Bonner	Agri.	Silverton	Marion
Sadie Bonner	D. S.	Silverton	Marion
Florence Irene Booco	D. S.	Denver, Colorado	
Jennie M. Bossen	D. S.	Langlois	Curry
Frank Henry Boulan	Agri.	Portland	Multnomah
Fred Grant Brown	C. E.	Ft. Klamath	Klamath
Robert Walton Brown	Com.	Drewsey	Harney
Vernon Jordan Brown	Phar.	Corvallis	Benton
Lizzie Buchanan	D. S.	Corvallis	Benton
John Townsend Burch	C. E.	Rickreall	Polk
Allan Burdick	Mech.	Portland	Multnomah
Walter Kellsey Burgess	Mech.	Newberg	Yamhill
Malo Claire Cady	D. S.	Holbrook, Nebraska	
Ned Hunter Calloway	Com.	Brownsville	Linn
Vida Beatrice Calvert	D. S.	Lucerne, Missouri	
Clyde N. Carey	Elec.	Springbrook	Yamhill
Glover Carroll	Agri.	Portland	Multnomah

Name.	Course.	Postoffice.	County.
Walter G. Carson	C. E.	Irrigon	Morrow
Richard Lemuel Casteel	Phar.	Pilot Rock	Umatilla
Ray Winton Castle	C. E.	Irrigon	Morrow
William M. Chalmers	Mech.	Hillsboro	Washington
Ross L. Chamberlain	Elec.	Suver	Polk
Chester William Chambers	Com.	Kings Valley	Benton
Ray Chambers	Elec.	Astoria	Clatsop
Roy Chapman	Phar.	Fossil	Wheeler
Harold Chase	Agri.	Eugene	Lane
Richard Cheadle	Agri.	Lebanon	Linn
Joe Chernis	C. E.	Portland	Multnomah
Huron Willoughby Clough	C. E.	Canyonville	Douglas
Frank William Clyne	Agri.	Los Angeles, California	
Frank Leslie Christenson	Com.	Lexington	Morrow
Reid C. Cochran	Com.	Corvallis	Benton
Alfred Raymond Compton	Elec.	Scio	Linn
John Orlie Conrad	Mech.	Newberg	Yamhill
Robert Arnold Cook	Elec.	Portland	Multnomah
Harvey Clifford Cooper	Phar.	Corvallis	Benton
Ruth Lillian Corbett	D. S.	Corvallis	Benton
Ethel Louise Courtney	D. S.	Dayton, Washington	
Henry Crane	Mech.	The Dalles	Wasco
Hazel Marie Crim	D. S.	Tualatin	Washington
Allen Croasman	Min.	Portland	Multnomah
Hershel Eugene Curry	Phar.	Baker City	Baker
Lester Ray Cypher	Min.	Cornelius	Washington
Otto Arnold Dahl	Agri.	Silverton	Marion
Charles Vador Darling	Mech.	Portland	Multnomah
Bessie Davidson	D. S.	Ione	Morrow
Charles E. Davis	Elec.	Grass Valley	Sherman
Leona Georgia Davis	D. S.	Grass Valley	Sherman
Stowell F. Dawson	Phar.	Albany	Linn
Harold Karl Dean	Agri.	Baker City	Baker
Ellis Samuel Dement	Agri.	Myrtle Point	Coos
Lester Thomas Dement	Agri.	Myrtle Point	Coos
Harry Dinges	Phar.	Albany	Linn
Lila Grace Dobell	D. S.	Blackfoot, Idaho	
Cecil Muriel Dodd	Phar.	Falls City	Polk
Irene Fern Dodd	Phar.	Falls City	Polk
Clarence Dunn	C. E.	Cloverdale	Tillamook
Lulu Eddy	Phar.	Roseburg	Douglas
Jesse B. Edington	Mech.	Athena	Umatilla
Irene Ellenburg	Com.	Drain	Douglas
Vernita Fern Ellenburg	Com.	Drain	Douglas
Nellie Edel Elliott	D. S.	Damascus	Clackamas
Ruby Edith Elliott	D. S.	Powell Valley	Multnomah

Name.	Course.	Postoffice	County.
Lester Morris Ellis	Elec.	Rainier	Columbia
Albert Frederick Eschricht	Min.	Portland	Multnomah
George Balch Farris	C. E.	Gresham	Multnomah
Vernon Roy Faxon	Com.	Prairie City	Grant
Richard Fendall	Agri.	Sheridan	Yamhill
Jesse Ray Fleming	Agri.	Bakeoven	Wasco
Alfred Freiwald	C. E.	Portland	Multnomah
Clay Freeman	Elec.	Hillsboro	Washington
Claude Galloway	Phar.	Shelburn	Linn
Laura Mabel Gardner	D. S.	Drain	Douglas
Page Eugene Gardner	Phar.	Cornelius	Washington
Fred M. Gay	Mech.	Tipton, Iowa	
Vane G. Gibson	Elec.	Warm Spring	Crook
Mahlon Bruce Gilbert	Elec.	Pilot Rock	Umatilla
Vernice Ruth Gilkey	Com.	Grants Pass	Josephine
Sam Goldstein	C. E.	Portland	Multnomah
Ernest L. Graham	Mech.	Portland	Multnomah
Frank Earl Graham	Elec.	Houlton	Columbia
Howard M. Graveley	Elec.	Boise, Idaho	
Fred Newton Graves	Elec.	Sheridan	Yamhill
John Delbert Griffin	Agri.	Astoria	Clatsop
Frederic Bernhart Gross	Mech.	Athena	Umatilla
Earle Dutton Hallock	Agri.	Heppner	Morrow
Ida Elizabeth Hansen	D. S.	Kerby	Josephine
Clancy Clifford Harrington	Elec.	Corvallis	Benton
Bert E. Harris	Mech.	Lents	Multnomah
Earl Sorsby Harris	Agri.	Corvallis	Benton
Edna Marie Harris	D. S.	St. Helens	Columbia
Scott P. Hart	C. E.	Albany	Linn
Katherine Hassenbalg	Com.	Corvallis	Benton
Charles Dolan Hatfield	Agri.	Roseburg	Douglas
Grace Hawley	D. S.	Corvallis	Benton
Ralph Victor Hawley	C. E.	Cottage Grove	Lane
Herbert Thornton Heath	C. E.	McMinnville	Yamhill
Earl William Heckart	Mech.	Corvallis	Benton
Ruth Ada Helliwell	Phar.	Yoncalla	Douglas
Esther Pearl Henderson	D. S.	Corvallis	Benton
George Fred Hess	Elec.	Corvallis	Benton
Louis Edward Hess, Jr.	Phar.	Prairie City	Grant
Edgar Carl Hexter	Agri.	Portland	Multnomah
Leroy V. Hicks	Elec.	Ashland	Jackson
Josephine Hinnell	D. S.	Salem	Marion
Leon Lewis Hirtzel	Mech.	Scotts Mills	Marion
George Prentice Hicinbothom	Elec.	Oregon City	Clackamas
Harry Douglas Hobson	For.	Lyons	Linn
Dean Hollister	D. S.	Corvallis	Benton

Name.	Course.	Postoffice.	County.
Charles D. Houser	Phar.	Milwaukie	Clackamas
Frank Helen Hout	D. S.	Corvallis	Benton
Blaine Hubbard	Elec.	Salem	Marion
Charles Kennedy Hubbard	C. E.	Dundee	Yamhill
Chauncey Mulks Hubbard	Agri.	Hillsdale	Multnomah
Thomas Russell Hudson	C. E.	The Dalles	Wasco
Mabel Florence Huff	D. S.	Corvallis	Benton
Gwendolen Hughes	D. S.	Grants Pass	Josephine
McKinley Huntington	Agri.	Yoncalla	Douglas
Floyd Jerry Huntley	Agri.	Gold Beach	Curry
Gladis Jackson	D. S.	Shedd	Linn
Oscar William James	C. E.	Richland	Baker
Charles L. Johns	C. E.	The Dalles	Wasco
Ernest Valentine John	Elec.	St. Helens	Columbia
Lillian Johnson	Phar.	Corvallis	Benton
Leo Edwin Johnson	Mech.	Carlton	Yamhill
Jane Agnes Johnston	D. S.	Salem	Marion
Edith Leota Jones	Com.	Fayette, Iowa	
Ramona Kane	Com.	Ashland	Jackson
Maurice True Keady	Mech.	Corvallis	Benton
William Keady	Phar.	Corvallis	Benton
Lawrence Keene	Min.	Salem	Marion
Jean Marian Kent	D. S.	Portland	Multnomah
Philip Sheridan Keyes	C. E.	Mitchell	Wheeler
Minerva Kiger	Phar.	Corvallis	Benton
George W. King	Min.	Portland	Multnomah
Lucy A. King	D. S.	Corvallis	Benton
Glenn Emile Kirkwood	Com.	Amity	Yamhill
Earl Victor Knapp	Com.	Camas, Washington	
Lizzie Koeber	D. S.	Sherwood	Washington
Morris Koon	Agri.	Junction City	Lane
Orr Belknap Kyle	Phar.	Monroe	Benton
Chester D. Lafferty	Com.	Corvallis	Benton
Albert Lafky	Agri.	Salem	Marion
Harry Bernette Lamley	Min.	Portland	Multnomah
Ora Lance	Com.	Warley, Wisconsin	
John Armon Langford	Elec.	Salem	Marion
Walter Winfred Larson	C. E.	Laurel	Washington
Lester Lewis Leavitt	Elec.	Klamath Falls	Klamath
Alice Carrie Leedy	D. S.	Sherwood	Washington
Jay Clark Leedy	Agri.	Sherwood	Washington
George Legler	Com.	Hamilton	Grant
Maggie K. Legler	Com.	Hamilton	Grant
Clyde Clayton Levan	Min.	Portland	Multnomah
Gertrude Estelle Lilly	Phar.	Corvallis	Benton
Douglas Lively	Elec.	Portland	Multnomah

Name.	Course.	Postoffice.	County.
Forester Loosley	Mech.	Ft. Klamath	Klamath
Will Lottman	Agri.	Portland	Multnomah
Lloyd Pulley Lowe	C. E.	Bull Run	Clackamas
Alfred Gunn Lunn	Agri.	Philadelphia, Pa.	
Lewis V. Macken	Phar.	McCoy	Polk
James F. Mahoney	Mech.	Gervais	Marion
James Buzzell Mann	Mech.	Portland	Multnomah
Carl Henry Manock	Phar.	McMinnville	Yamhill
Charles Marlin	Mech.	Hillsboro	Washington
Floyd Marquis	Agri.	Eugene	Lane
Maurice Marquis	Com.	Eugene	Lane
Sam A. Marrotte	Elec.	Baker City	Baker
Chris Elbert Mays	Phar.	Elgin	Union
George Hubert McAllister	Phar.	N. Yamhill	Yamhill
Ralph McCulloch	Agri.	Ashland	Jackson
William H. McDaniel	Elec.	Portland	Multnomah
Brian McFadden	Com.	Corvallis	Benton
Charles Grant McLaughlin	Phar.	Independence	Polk
Charles Edward Merritt	Elec.	McCoy	Polk
Ina Merritt	D. S.	Clyde, Kansas	
Rosa Meyer	D. S.	Crabtree	Linn
William A. Miles	Agri.	Lostine	Wallowa
Emily Marie Miller	D. S.	North Bend, Nebraska	
Roger Q. Mills	Agri.	University Park	Mult.
Francis Willard Mitchell	D. S.	Newberg	Yamhill
Harold Montgomery	Elec.	Corvallis	Benton
Frank Walter Moore	C. E.	Newberg	Yamhill
Ralph Moore	Phar.	N. Yakima, Washington	
Mabel Bertha Moeck	D. S.	Rainier	Columbia
Benjamin Harriman Morris	Min.	Nome, Alaska	
George W. Morris	Elec.	Punxsutawney, Pa.	
Walter Edmund Morris	Com.	Punxsutawney, Pa.	
Earl Willis Moses	Agri.	Hood River	Hood River
Clarence Shelley Murray	Phar.	N. Yakima, Washington	
Adna Edward Murrow	Phar.	Portland	Multnomah
George F. Neefus	Min.	Portland	Multnomah
William Neland	Mech.	Portland	Multnomah
Lillian Nelson	D. S.	Scappoose	Columbia
Thorwald Henry Nelson	Mech.	Colville, Washington	
William H. Nitschke	Elec.	The Dalles	Wasco
Henry Odeen	Agri.	Portland	Multnomah
Rubie Irene Olsen	D. S.	Groton, S. Dakota	
Herbert Ray Olsen	Elec.	Portland	Multnomah
Rufus Kelsey Ordway	Agri.	Hood River	Hood River
Jud Oviatt	Phar.	Buell	Polk
Archie Clay Palmer	Com.	LaCenter, Washington	

Name.	Course.	Postoffice.	County.
Hazel Paquet	D. S.	Portland	Multnomah
Ruby C. Parelius	D. S.	Portland	Multnomah
Chester A. Parker	Elec.	Everett, Washington	
John William Patterson	Agri.	Baker City	Baker
Otis Larrabee Patterson	C. E.	Canyon City	Grant
Wade Brown Patterson	C. E.	Portland	Multnomah
William Glenn Patterson	Agri.	The Dalles	Wasco
Desire Joseph Perard	Phar.	Pendleton	Umatilla
Ben William Perkins	C. E.	Drain	Douglas
Edgar T. Pierce	Com.	Harrisburg	Linn
Lorenzo Pilkington	Agri.	Astoria	Clatsop
Alice Petra Pimm	D. S.	Philomath	Benton
Fred Plympton	C. E.	Portland	Multnomah
James Andrew Pointer	C. E.	Lexington	Morrow
Lester Denzil Porter	Agri.	Corvallis	Benton
Elta Portwood	D. S.	Airlie	Polk
Gladys Potter	D. S.	Spray	Wheeler
Vera Berchel Potts	D. S.	Tualatin	Washington
Lawrence Aubrey Prescott	Phar.	Toledo	Lincoln
John Preuss, Jr	Phar.	Marshfield	Coos
Harold Dudley Pugh	Min.	Portland	Multnomah
Lois Purdy	D. S.	Gaston	Washington
Alice Linegar Quick	D. S.	St. Helens	Columbia
Cecil Gladys Rafferty	D. S.	Cornelius	Washington
Clifford Leland Reed	Phar.	Burns	Harney
John Reese	C. E.	Startup, Washington	
Earl J. Rhea	Mech.	Walla Walla, Washington	
Ernest Graham Rice	Min.	Portland	Multnomah
Ruby Ailene Rice	D. S.	Clear Lake, Iowa	
Robert Earl Riley	For.	Portland	Multnomah
Stephen Arlie Roberts	Com.	Eugene	Lane
Sterling Edison Rothermal	C. E.	Medford	Jackson
James Ryder	C. E.	Newberg	Yamhill
George Sand	Agri.	Portland	Multnomah
Emerson Monroe Scarbrough	Elec.	Creswell	Lane
Orville Hammon Scheetz	Phar.	Baker City	Baker
Arnold Dorn Schmidt	Mech.	Gresham	Multnomah
Clarence George Schmidt	Mech.	Portland	Multnomah
Clark Edward Schultz	Agri.	Dundee, Illinois	
Lloyd P. Scott	Elec.	McCoy	Polk
Eugene Herman Scovill	C. E.	Grants Pass	Josephine
Willis Sherman Sibray	C. E.	Portland	Multnomah
Thomas Benjamin Simpson	Elec.	Nome, Alaska	
Charles E. Sitton	Agri.	Carlton	Yamhill
Otto Sitton	Agri.	Carlton	Yamhill
Woodson Eugene Slater	Agri.	Salem	Marion

Name.	Course.	Postoffice.	County.
Chester Lyman Smith	Elec.	Springfield	Lane
Dexter Ralph Smith	Elec.	Vancouver, Washington	
Hugh Smith	Elec.	Marshfield	Coos
William A. Smith	C. E.	San Francisco, Cal.	
Julius Spees	Elec.	Oregon City	Clackamas
Richard C. Spring	Mech.	Lebanon	Linn
Edith Madeline Sproat	D. S.	Hood River	Hood River
George Thomas Startzoff	Agri.	Sitka, Alaska	
Winlock William Steiwer	Agri.	Jefferson	Marion
Reuben Leonard Stoneberg	Com.	Coburg	Lane
Cameron C. Stuart*	Mech.	Portland	Multnomah
Emerson F. Surface	Phar.	Estacada	Clackamas
Alpheus Roscoe Tartar	Com.	Corvallis	Benton
Fred William Taylor	Agri.	Bull Run	Clackamas
Lawrence Larston Taylor	C. E.	Elmira	Lane
William Everett Taylor	Mech.	Oregon City	Clackamas
Gilbert Thayer	Elec.	Rainier	Columbia
Charles Robertson Thomson	Elec.	Mt. Tabor	Multnomah
Edwin W. Thornton	Elec.	Roseburg	Douglas
Jennie Olympia Totten	D. S.	Corvallis	Benton
Harold S. Turlay	Elec.	Astoria	Clatsop
Loy Monroe Turner	C. E.	Heppner	Morrow
George Alexander Urquhart	Elec.	Moro	Sherman
William Roy Varner	Elec.	Lostine	Wallowa
Emma Alvina Vick	D. S.	Molalla	Clackamas
Alfred Edmund Volck	Agri.	Coburg	Lane
Paul Theodore Wagner	Agri.	Portland	Multnomah
Della Eleanor Walker	D. S.	Mountain Home, Idaho	
Levier Esmund Walker	Min.	Mountain Home, Idaho	
Hyrum Lew Wallace	Com.	Woodston, Kansas	
Warren Woodson Wallace	Com.	Woodston, Kansas	
Clara Ellice Wallan	D. S.	Adams	Umatilla
Gustav Peter Wanstrom	Agri.	Fishhawk	Clatsop
Paul Raleigh Watson	C. E.	Battle Ground, Wash.	
Ethel Watters	D. S.	Corvallis	Benton
Elmer Francis Weatherford	Com.	Sumpter	Baker
Effie Weaver	D. S.	Myrtle Creek	Douglas
Helen Augusta Weir	D. S.	Portland	Multnomah
Floyd C. Westerfield	Elec.	Grass Valley	Sherman
Harold Whitby	Agri.	Corvallis	Benton
Harris Whitby	Agri.	Corvallis	Benton
Blanche Whittemore	D. S.	Pendleton	Umatilla
Edith May Williams	D. S.	Harrisburg, Texas	
Glenna Wilson	Phar.	Mt. Hood	Hood River

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*Deceased.

Name.	Course.	Postoffice.	County.
Ora Mae Wilson	D. S.	Corvallis	Benton
Roy Alfred Wilson	Phar.	Amity	Yamhill
Carl Windom	Agri.	Culver	Crook
Harry Earl Windom	Agri.	Prineville	Crook
Nora Adilla Winniford	D. S.	Wren	Benton
Rusk Platt Wise	C. E.	Portland	Multnomah
Basil Witzig	Mech.	Parkplace	Clackamas
George Douglas Wood	Elec.	McMinnville	Yamhill
Carl Martin Wright	C. E.	Klamath Falls	Klamath
Fletcher M. Young	For.	San Francisco, Cal.	
Maynard Andrew Young	Agri.	Mitchell	Wheeler

SECONDARY:

Name.	Course.	Postoffice.	County.
Andrew John Acheson	Com.	Deadwood	Lane
John Adair, Jr.	Agri.	Warrenton	Clatsop
Challis W. Allen	Com.	Lostine	Wallowa
Fred Sebastian Allen	Mech. Arts	Grant's Pass	Josephine
William Alves Anderton	Agri.	Fossil	Wheeler
Arlo Cecil Armstrong	Com.	Eddyville	Lincoln
Leslie Taylor Barnett	Mech. Arts	Wasco	Sherman
Milo Bartu	Mech. Arts	Crabtree	Linn
John Dawson Bergen	Agri.	Hastings, Oklahoma	
Fred Floyd Blanchard	Mech. Arts	Lents	Multnomah
Ralph Lincoln Brandt	Mech. Arts	Oak Grove	Clackamas
John D. Breuer	Agri.	Myrtle Point	Coos
Frank J. Brobst	For.	Portland	Multnomah
Robert Vernon Brownell	Com.	Umatilla	Umatilla
George William Brune	Agri.	Portland	Multnomah
A. Conklin Buckley	Agri.	Grass Valley	Sherman
George Burkhalter	Agri.	Hillsboro	Washington
Lester Robert Campbell	Agri.	Portland	Multnomah
William E. Carty	Agri.	Ridgefield, Washington	
Lyman Harrison Case	Mech. Arts	Jefferson	Marion
Kenneth Charles Colbert	Mech. Arts	Corvallis	Benton
Anthony John Connelly	Mech. Arts	The Dalles	Wasco
Spencer Albert Covell	Mech. Arts	Corvallis	Benton
Chester Allen Dickey	Com.	Molalla	Clackamas
Harvey Howard Dickey	Com.	Junction City	Lane
Willis Robert Dallas	Agri.	Kist	Columbia
Chester R. Davis	Agri.	Freewater	Umatilla
Stehman Diller	Mech. Arts	Melrose	Douglas
Harlow Meserve Douglas	Mech. Arts	Grays River, Wash.	
Ralph Eli Duncan	Agri.	Portland	Multnomah
Lawrence Elmer Eagy	Com.	Oakville	Linn

Name.	Course.	Postoffice.	County.
Mabel Ioata Elliott	Com.	Scappoose	Columbia
Fred Seely Else	Mech. Arts	Blackfoot, Idaho	
Edith Emery	D. S.	Ft. Klamath	Klamath
Hazel Emery	D. S.	Ft. Klamath	Klamath
Lee Earl Emery	For.	Ft. Klamath	Klamath
Denver Charles Evans	Mech. Arts	Elmira	Lane
James M. Evenden	For.	McMinnville	Yamhill
Walter LeVeair Fearnley	Agri.	Portland	Multnomah
Harvey Louis Fischer	Com.	Silverton	Marion
Allan Fletcher	Com.	Buell	Polk
Hugh Cameron Fletcher	Com.	Buell	Polk
Will Herman Foster	Mech. Arts	Jewell	Clatsop
John W. Francis	Com.	Baker City	Baker
Guy Gabriel	Mech. Arts	Hood River	Hood River
Lloyd Leroy Gabriel	Mech. Arts	Hood River	Hood River
Mildred Ruth Gabriel	D. S.	Hood River	Hood River
Roscoe L. Gardner	For.	Drain	Douglas
Grace Dorothy Garlitz	D. S.	Blackfoot, Idaho	
Paul R. Gilchrist	For.	Paulina	Crook
Albert Griggs	Agri.	Laurel, Nebraska	
Ernest Mathias Guenther	Agri.	Gaston	Washington
Walter Eugene Guyer	Mech. Arts	Airlie	Polk
Roy Ray Hamersley	Mech. Arts	Alsea	Benton
Roland Handy	Com.	Corvallis	Benton
Paul Bille Hansen	Agri.	Portland	Multnomah
Joseph A. Henderson	Mech. Arts	Weston	Umatilla
Melvin R. Hoff	Com.	New Era	Clackamas
Emil Edwin Horning	Mech. Arts	Corvallis	Benton
D. C. Howard	Agri.	Salem	Marion
Harry Barrows Howard	Agri.	Tigardville	Washington
Lillie Annie Howard	D. S.	Corvallis	Benton
Russell Marion Howard	Agri.	Tigardville	Washington
Walter William Howard	Agri.	Tigardville	Washington
Retta Huntington	D. S.	Yoncalla	Douglas
Claude Percy Hyde	Com.	Corvallis	Benton
Charles Percy Jaquith	Agri.	Laurel	Washington
Tony Genieva Jennings	Com.	Portland	Multnomah
Violet Dolores Jennings	Com.	Portland	Multnomah
George Henry Johnson	Agri.	Boise, Idaho	
Herbert James Johnson	Mech. Arts	Hammond	Clatsop
Justin Everett Judy	Agri.	Medford	Jackson
Moichi Kawashima	Agri.	Seattle, Washington	
Howard Kellogg	Mech. Arts	Baker City	Baker
Alfred August Kern	Agri.	Washougal, Washington	
Oscar Edwin Kern	Mech. Arts	Washougal, Washington	
William C. Kinderman	Mech. Arts	Dayton	Yamhill

Name.	Course.	Postoffice.	County.
Orville Kruse	Com.	Oakland	Douglas
Howe Gam Lee	Com.	Portland	Multnomah
Edward Benney Loken	Mech. Arts	Harrisburg	Linn
John Henry Mack	Agri.	Portland	Multnomah
Ray George Matthies	Mech. Arts	Cornelius	Washington
Bernhard Max Meyer	Agri.	Lents	Multnomah
Richard Max Meyer	Agri.	Lents	Multnomah
Glenn McAllister	Mech. Arts	Shaw	Marion
John James McDonald	Mech. Arts	Albany	Linn
Roy Oliver McGee	Mech. Arts	Cascade Locks	Hood River
Eva Crystal McLagan	D. S.	Tangent	Linn
Ruby May McLagan	D. S.	Tangent	Linn
Herman McLaughlin	Mech. Arts	Roseburg	Douglas
John Frank Meyer	Com.	Crabtree Linn	Linn
Max Richard Miller	Com.	Corvallis	Benton
Raymond Alexander Mitchell	Agri.	Amity	Yamhill
Cecil Paul Moffitt	Com.	Junction City	Lane
Bruce Charles Montague	Com.	Portland	Multnomah
Merle Moore	Mech. Arts	Corvallis	Benton
Paul Fred Munsell	Com.	Portland	Multnomah
Lou Musgrave	D. S.	Glen Elder, Kansas	
Maude Isabella Nebo	D. S.	Aurora	Clackamas
Margaret Nicolai	D. S.	Molalla	Clackamas
James Emmet Norton	Com.	Airlie	Polk
Katie O'Connor	D. S.	Montague, California	
Bessie Elma Olson	D. S.	Grays River, Washington	
Oscar John Olson	For.	Marion	Marion
George Ransom Parker	Mech. Arts	Grants Pass	Josephine
Henry Pfister	Mech. Arts	Portland	Multnomah
Ray Phipps	Mech. Arts	Newberg	Yamhill
Laurance F. Pickens	Mech. Arts	Medford	Jackson
Mack Porter	Agri.	Corvallis	Benton
Irene Elizabeth Preuss	D. S.	Marshfield	Coos
Alta Alice Purdy	D. S.	Gaston	Washington
Golda Vest Rhodes	D. S.	Independence	Polk
Louis Orson Rhodes	Agri.	Hood River	Hood River
John Dale Ridgeway	Mech. Arts	Buell	Polk
Ernest E. Roberts	Mech. Arts	Portland	Multnomah
Walter Robinson	Com.	Hillsboro	Washington
Grace Rose	D. S.	Phoenix	Jackson
Cecil Vivian Ross	Com.	Astoria	Clatsop
Fred William Rotzien	Mech. Arts	Salem	Marion
William Douglas Russell	For.	Portland	Multnomah
John Sandner	Agri.	Scio	Linn
William Roy Sawyers	Mech. Arts	Elkton	Douglas
Frank Schulmerich	Agri.	Hillsboro	Washington

Name.	Course.	Postoffice.	County.
Frank Harrison Schwartz	Mech. Arts	Oregon City	Clackamas
Lester Lee Schwartz	Com.	Oregon City	Clackamas
Lee Seavey	Agri.	Springfield	Lane
Jolly Michael Shelley	Agri.	Hood River	Hood River
Albert M. Shrier	Mech. Arts	Centerview, Missouri	
Lester Raymond Smith	Agri.	Corvallis	Benton
Dock F. South	For.	Foster	Linn
Wilfred A. Spencer	Mech. Arts	Redland	Clackamas
James Henry Standish	For.	Portland	Multnomah
George Winfield Starr	Mech. Arts	Corvallis	Benton
Con Lonzo Stilwell	Mech. Arts	Grass Valley	Sherman
Walter Curtis Stimson	Com.	Corvallis	Benton
Howard Benjamin Stokes	Com.	Portland	Multnomah
Lester Stone	Mech. Arts	Newberg	Yamhill
Fred William Streib	Agri.	Milwaukie	Clackamas
George Thomas Strine	Mech. Arts	Portland	Multnomah
John R. Stuber	Com.	Enterprise	Wallowa
Robert Harold Taylor	Mech. Arts	Hillsboro	Washington
Harry M. Teel	For.	Portland	Multnomah
Lloyd Trickey	Mech. Arts	Palmer	Multnomah
Mabel Mary Turlay	D. S.	Astoria	Clatsop
Harry A. Van Gilder	Mech. Arts	Wasco	Sherman
Annis Wade	D. S.	Enterprise	Wallowa
Emma Fay Wade	D. S.	Enterprise	Wallowa
Frank Waterhouse	For.	Clatsop	Clatsop
Ira Lee Waterman	Meach. Arts	The Dalles	Wasco
William V. Weaver	For.	Enterprise	Wallowa
Henry Arthur White	Mech. Arts	Vancouver, Washington	
Claude D. Whitehorn	Com.	Corvallis	Benton
Charley Whiteside	Mech. Arts	Corvallis	Benton
Edna Whitney	D. S.	Cheney, Washington	
Clyde Whittemore	D. S.	Pendleton	Umatilla
Eunice Whittemore	D. S.	Pendleton	Umatilla
Gerald Wilcox	Mech. Arts	Springwater	Clackamas
Agnes Wilson	Com.	Corvallis	Benton
Carl William Wilson	Com.	Astoria	Clatsop
Reginald G. Witte	For.	Milwaukie	Clackamas
Edwin Woodcock	Com.	Corvallis	Benton
Winona E. Woodward	D. S.	Corvallis	Benton
Marion Eliza Yoakam	D. S.	Marshfield	Coos
Fred Byron Young	Mech. Arts	Burnt Ranch	Wheeler

SPECIALS:

Name.	Course.	Postoffice.	County.
John W. Bullard	Agri.	Chemawa	Marion
Brady Burnett	Min.	Canyonville	Douglas
Celia Chernis	D. S.	Portland	Multnomah
Christie Cleve	Com.	Corvallis	Benton
Alice C. Connors	Com.	Silver City, Idaho	
Gretchen Cormany	D. S.	St. Johns	Multnomah
Emma Crawford	Com.	Corvallis	Benton
Otheo G. Crawford	Com.	Heppner	Morrow
John Hamilton Darby	Agri.	Medford	Jackson
Robert Benjamin Denny	Agri.	Beaverton	Washington
Carroll DeSouchet	Agri.	Boise, Idaho	
Leon M. Dow	Elec.	Astoria	Clatsop
Archie Guy Erskine	Agri.	Lebanon	Linn
Karl Wm. Farnsworth	Agri.	Heppner	Morrow
Paul C. Fischer	Com.	Mt. Angel	Marion
Frances Leona Gaskins	Com.	Hillsdale, Michigan	
Ella Jean Hays	Com.	Tillamook	Tillamook
Thomas Henry Hinnell	Mech.	Salem	Marion
Isabelle Horner	D. S.	Corvallis	Benton
Frances Houston	D. S.	Kalispell, Montana	
Nellie Johnson	D. S.	Barlow	Clackamas
Lillian May Lake	Com.	Corvallis	Benton
Roscoe Verne Lake	Mech.	Corvallis	Benton
Chester Allan Mansfield	Agri.	Portland	Multnomah
Gertrude McBee	Com.	Corvallis	Benton
James McCaustland	Mech.	Spokane, Washington	
Ethel McKennon	Com.	La Grande	Union
William Martin Meier	Agri.	Eugene	Lane
Mrs. Nellie Peck	D. S.	Hood River	Hood River
James W. Pomeroy	Agri.	Scappoose	Columbia
Laura Frances Pratt	D. S.	Mound City, Nebraska	
Bessie Annette Robinson	D. S.	Portland	Multnomah
Mrs. L. M. Scudder	Com.	Vernonville, Michigan	
Miles Standish	Agri.	Chicago, Illinois	
Phillips Furman Standish	Agri.	Portland	Multnomah
Cap Howard Tuttle	Agri.	Summerville	Union
Sabert Sylvester Whalley	Agri.	Portland	Multnomah
Alice Edna Williams	D. S.	Corvallis	Benton

MUSIC ONLY:

Winnifred Aldrich	Milbank, South Dakota	
May Allen	Philomath	Benton
Kathleen Armstrong	Mountain View	Benton
Harry B. Auld	Corvallis	Benton
Olive Davis-Bassett	Springfield	Lane
Gertrude Elizabeth Bernard	Portland	Multnomah
Janet Ann Blackledge	Newton, Iowa	
Carrie Buchanan	Corvallis	Benton
Emma Butcher	Baker City	Baker
Ruby Myrtle Cadle	Prineville	Crook
Mrs. Alice Campbell	Chicago, Illinois	
Alice Marie Cathey	Woodburn	Marion
Laura Jane Coffman	Grants Pass	Josephine
Irene Helen Curran	Portland	Multnomah
Dorothy Davis	Silverton	Marion
Harry Lionel Davis	Monmouth	Polk
Ethel Maud Downer	Onaga, Kansas	
Maud Draper	Greenhorn	Baker
Leroy Alexander Esson	Gervais	Marion
Ariel Ewing	New York, N. Y.	
Albert Horatio Fargher	Dufur	Wasco
Elwood Byron Faxon	Prairie City	Grant
Greta India Gray	Arapahoe, Nebraska	
Rozelle Hardman	Portland	Multnomah
Alma Pearl Hershberger	Woodburn	Marion
Frances Augusta Hodes	Corvallis	Benton
Mabel Agnes Houck	Gold Hill	Jackson
Ethel Marguerite Hunter	Corvallis	Benton
Helen Huston	Corvallis	Benton
Harriett L. Irwin	Barlow	Clackamas
Blanche Jeffreys	Portland	Multnomah
Cleo Lorena Johnson	Corvallis	Benton
Esther Johnson	Coquille	Coos
Queen Inez Johnson	Newberg	Yamhill
George Bell Koozer	Lakeview	Lake
Ielleen Alanne Leech	Woodburn	Marion
H. Lew Mathre	Story City, Iowa	
Leora McBee	Corvallis	Benton
Luther McGinnis	Moro	Sherman
Hazel Merriman	Philomath	Benton
Mrs. F. L. Miller	Corvallis	Benton
N. R. Moore	Corvallis	Benton
S. J. Morrison	Drady, North Dakota	
Everett A. Moses	Corvallis	Benton
Edna M. Osburn	Corvallis	Benton

Lada Flo Patterson	North Yamhill	Yamhill
Mrs. E. F. Pernot	Corvallis	Benton
Mabel Kate Rich	Harrison, Idaho	
Vena Rickard	Corvallis	Benton
Elma Ola Rogers	Corvallis	Benton
Mrs. William Theodore Rowley	Halsey	Linn
Henry Arthur Schmidt	Milwaukee, Wisconsin	
Lawrence Skipton	Corvallis	Benton
Grace Velma Smith	Corvallis	Benton
Gertrude Mary Strange	Corvallis	Benton
Elnora Margaret Sudtell	Halsey	Linn
Lena Belle Tartar	Corvallis	Benton
Mrs. E. J. Taylor	Hollister, California	
Ray Palmer Tracy	Condon	Gilliam
Maude Turlay	Astoria	Clatsop
Lorena Anna Wirt	Oysterville, Washington	
Mrs. Harold Woodcock	Hollister, California	

SHORT WINTER COURSES—HORTICULTURE:

A. B. Armstrong	Dee	Wasco
J. F. Asche	Albany	Linn
A. Barns	Honolulu, T. H.	
H. Barrett	Springfield	Lane
R. A. Brown	Washington, D. C.	
F. J. Chalmers	Cornelius	Washington
C. P. Coleman	Templeton	Coos
H. P. Consor	Portland	Multnomah
G. A. Cooper	Corvallis	Benton
E. W. Cooper	Albany	Linn
Helen Crawford	Lebanon	Linn
O. R. Daugherty	Molalla	Clackamas
D. C. Davis	Corvallis	Benton
J. E. Dow	Sherwood	Washington
W. L. Dresback	Mosier	Wasco
Andrew Duval	Silverton	Marion
A. R. Ewing	Salem	Marion
P. M. Ewing	Peoria, Illinois	
W. B. Ewing	Peoria, Illinois	
J. R. Fawk	Rickreall	Polk
G. D. Foster	Corvallis	Benton
N. E. Foster	Ashland	Jackson
J. E. French	Corvallis	Benton
E. A. Howey	Coquille	Coos
C. W. Holdridge	Talent	Jackson
J. L. Hoisington	North Yakima,Washington	
P. Hult	Colton	Clackamas

N. F. Holman	Albany	Linn
C. Ireland	Monmouth	Polk
D. B. Knox	Cottage Grove	Lane
Dudley Lindsey	Owensboro, Kentucky	
E. F. May	Central Point	Jackson
C. W. Mason	Blodgett	Benton
R. J. McIsaac	Mt. Hood	Hood River
S. M. Mears, Jr.	Central Point	Jackson
Dr. A. Mills	Fisher	Lincoln
—. Mills	Corvallis	Benton
L. O. Moon	Chehalis, Washington	
S. I. Morrison	Druly, North Dakota	
S. Nishizaki	The Dalles	Wasco
C. A. Reed	Hood River	Hood River
C. G. Roberts	Hood River	Hood River
E. C. Roberts	Lebanon	Linn
Harold Rumbaugh	Albany	Linn
P. S. Sather	Home Valley, Washington	
O. J. Sether	Glendale	Douglas
P. H. Spillman	Barton	Clackamas
H. C. Spregelholder	Portland	Multnomah
H. A. Stoneburg	Coburg	Lane
C. J. Thomas	Dee	Wasco
G. T. Vernon	Alsea	Benton
C. C. Walton	Mt. Hood	Hood River
J. C. Wilson	Seattle, Washington	

DAIRYING:

Mrs. Ora Allen	Bend	Crook
Fred Chadwick	Warrenton	Clatsop
F. J. Chalmers	Cornelius	Washington
Frank Friederich	Aurora	Marion
Otto Friederich	Aurora	Marion
E. G. Loomis	Nahcotta, Washington	
Harold B. Looney	Jefferson	Marion
Paul C. Maris	Portland	Multnomah
A. W. McKay	Portland	Multnomah
Lewis E. McMillin	Mehama	Marion
Cecil E. Pitney	Junction City	Lane
E. S. Prindel	Fisher	Lincoln
W. O. Reith	Astoria	Clatsop
S. A. Seitz	Fisher	Lincoln
George O. Strangel	Sherwood	Washington
J. Walter Wilmarth	Boring	Clackamas

MECHANIC ARTS:

Lloyd L. Abbey	Eugene	Lane
Peter Arnoldus	Summerville	Union
William Bradshaw	Summerville	Union
W. A. Bull	Summerville	Union
Harry Davis	Monmouth	Polk
J. W. G. Dawson	Clatsop	Clatsop
John F. Erickson	Mulino	Clackamas
George E. Eyre	Tuxford, Canada	
E. V. Gabriel	Corvallis	Benton
Herman E. Kamholz	Centerville, Washington	
D. D. Kauffman	Hubbard	Marion
Oliver M. King	Hubbard	Marion
Frank D. Kropf	Aurora	Marion
Hugh N. Mallow	Shedd	Linn
John D. Marshall	Mulino	Clackamas
Walter E. Meyer	Crabtree	Linn
Edward A. O'Donnel	Klamath Falls	Klamath
Fred J. Porter	Corvallis	Benton
Carl J. Sather	Glendale	Douglas
C. H. Tuttle	Summerville	Union
John Warfield	Alsea	Benton
Adolph Waysland	Glendale	Douglas
A. R. Willits	Persist	Jackson

DOMESTIC SCIENCE AND ART:

Mrs. E. D. Angell	Corvallis	Benton
Mrs. A. Barnes	Honolulu, Hawaii	
Mamie Blosse	Winchester	Douglas
Opal I. Briggs	Heppner	Morrow
Marie L. H. Caceres	Corvallis	Benton
Mrs. Josephine Currin	Corvallis	Benton
Carrie A. Danneman	Corvallis	Benton
Adelaide Dunlap	Corvallis	Benton
Mrs. Lizzie Davidson	Corvallis	Benton
Juanita Davis	Corvallis	Benton
Athena N. Edmonds	Drain	Douglas
Mrs. Geo. E. Eyre	Tuxford, Canada	
Edna Groves	Corvallis	Benton
Frances B. Hollenberg	Corvallis	Benton
Katie Jefferson	Salem	Marion
Mrs. Margaret Johnson	Corvallis	Benton
Mrs. S. M. LeClaire	Portland	Multnomah
Maude E. McBee	Corvallis	Benton

Mrs. D. McKenzie	Corvallis	Benton
Mrs. Nellie Peck	Hood River	Hood River
Mrs. A. A. Penrose	Gervais	Marion
Esther M. Penrose	Amity	Yamhill
Anna Sheddrick	Corvallis	Benton
Mrs. Lillian Surface	Corvallis	Benton
Verna M. Tagg	Clatsop	Clatsop
Mrs. Christine Taylor	Corvallis	Benton
Mrs. Charles Thomas	Dee	Wasco
Mrs. Chester Walton	Hood River	Hood River
Ethel W. Waterhouse	Gearhart	Clatsop

FARMERS' WEEK:

J. Q. Adams	Ashland	Jackson
W. A. Adams	Airlie	Polk
Peter Arnoldus	Summerville	Union
P. L. Barber	Coburg	Lane
Freeman D. Bevens	Corvallis	Benton
Bruce Bowne	Turner	Marion
Clarence S. Bowne	Aumsville	Marion
William Bradshaw	Summerville	Union
L. L. Brooks	Corvallis	Benton
W. A. Bull	Summerville	Union
O. E. Davidson	Harrisburg	Linn
Carey DeVaney	Irving	Lane
Chester W. Edwards	Junction City	Lane
W. J. Edwards	Mayville	Gilliam
A. R. Ewing	Salem	Marion
Edd Eyre	Turner	Marion
George E. Eyre	Tuxford, Canada	
G. W. Eyre	Salem	Marion
N. E. Foster	Ashland	Jackson
James French	Corvallis	Benton
A. E. Hanley	Hillsboro	Washington
M. J. Harper	Junction City	Lane
W. J. Harper	Corvallis	Benton
C. L. Hawley	McCoy	Polk
N. E. Holman	Albany	Linn
F. Howard	Corvallis	Benton
E. A. Howey	Coquille	Coos
Daniel D. Kauffman	Hubbard	Marion
Oliver W. King	Hubbard	Marion
Dudley Lindsey	Owensboro, Kentucky	
Frank Lines	Albany	Linn
H. Link	Airlie	Polk
Walter E. Lipsey	Riverside, Illinois	

Eugene G. Loomis	Nahcotta,	Washington
Harold B. Looney	Jefferson	Marion
Hugh Mallow	Shedd	Linn
Paul V. Maris	Portland	Multnomah
John D. Marshall	Mulino	Clackamas
C. W. Mason	Blodgett	Benton
Walter Meyer	Crabtree	Linn
Dr. A. Mills	Fisher	Lincoln
G. P. Miner	Corvallis	Benton
Ernest Naef	Milwaukie	Clackamas
W. O. Reith	Astoria	Clatsop
John T. Ross	Eugene	Lane
Peter L. Sather	Home Valley,	Washington
S. B. Simmons	Junction City	Lane
H. C. Spregelholder	Portland	Multnomah
Winlock W. Steiwer	Jefferson	Marion
Clarence B. Stratton	Albany	Linn
Hugh Taylor	Corvallis	Benton
Charles J. Thomas	Dee	Wasco
Mrs. Chas. J. Thomas	Dee	Wasco
C. W. Tidd	Corvallis	Benton
F. J. Von Behren	Aumsville	Marion
A. C. Tunigar	Corvallis	Benton
A. Widmer	Albany	Linn
A. A. Williamson	Wells	Benton
H. M. Williamson	Portland	Multnomah
M. C. Wilson	Salem	Marion
J. O. Wing	Washougal,	Washington

RECAPITULATION:

	Men	Women	Dept. Total	Class Total
Graduates	18	4	....	22
Seniors:				
Agriculture	19	....	19	
Civil Engineering	11	....	11	
Electrical Engineering	30	....	30	
Mechanical Engineering	6	....	6	
Mining Engineering	6	....	6	
Domestic Science and Art	...	21	21	
Commerce	9	10	19	
Pharmacy	4	2	6	118
Juniors:				
Agriculture	19	....	19	
Forestry	5	....	5	
Civil Engineering	19	....	19	
Electrical Engineering	39	....	39	
Mechanical Engineering	11	....	11	
Mining Engineering	12	....	12	
Domestic Science and Art	...	21	21	
Commerce	5	11	16	
Pharmacy	11	3	14	156
Sophomores:				
Agriculture	34	....	34	
Forestry	5	....	5	
Civil Engineering	46	....	46	
Electrical Engineering	42	....	42	
Mechanical Engineering	26	....	26	
Mining Engineering	20	....	20	
Domestic Science and Art	...	35	35	
Commerce	21	11	32	
Pharmacy	22	3	25	265
Freshmen:				
Agriculture	56	....	56	
Forestry	3	....	3	
Civil Engineering	40	....	40	
Electrical Engineering	51	....	51	
Mechanical Engineering	33	....	33	
Mining Engineering	14	....	14	
Domestic Science and Art	...	67	67	
Commerce	24	7	31	
Pharmacy	33	8	41	336
Secondary:				
Agriculture	37	....	37	
Forestry	13	....	13	
Mechanic Arts	54	....	54	
Domestic Science and Art	...	25	25	
Commerce	30	5	35	164
Specials	20	18	....	38
Music only	14	48	....	62
Winter Courses	150	32	....	182
Special Course Industrial Pedagogy for Teachers	8	35	....	43
Total	1020	366	....	1386
Counted twice	31	4	....	35
Total number of students	989	362	....	1351

STUDENTS CLASSIFIED BY COURSES OF STUDY.

Agriculture:		
Graduates	9	
Seniors	19	
Juniors	19	
Sophomores	34	
Freshmen	56	
Secondary	37	
Specials	13	
Dairying—Winter Course	16	
Farmers' Week	61	
Horticulture—Winter Course	53—	317
Forestry:		
Juniors	5	
Sophomores	5	
Freshmen	3	
Secondary	13—	26
Civil Engineering:		
Graduate	1	
Seniors	11	
Juniors	19	
Sophomores	46	
Freshmen	40—	117
Electrical Engineering:		
Graduates	5	
Seniors	30	
Juniors	39	
Sophomores	42	
Freshmen	51	
Special	1—	168
Mechanical Engineering:		
Graduates	2	
Seniors	6	
Juniors	11	
Sophomores	26	
Freshmen	33	
Secondary—Mechanic Arts	54	
Specials	3	
Mechanic Arts—Winter Course	23—	158
Mining Engineering:		
Graduate	1	
Seniors	6	
Juniors	12	
Sophomores	20	
Freshmen	14	
Special	1—	54
Domestic Science and Art:		
Graduates	2	
Seniors	21	
Juniors	21	
Sophomores	35	
Freshmen	67	
Secondary	25	
Specials	9	
Winter Course	29—	209
Commerce:		
Seniors	19	
Juniors	16	
Sophomores	32	
Freshmen	31	
Secondary	35	
Specials	11—	144
Pharmacy:		
Graduates	2	
Seniors	6	
Juniors	14	
Sophomores	25	
Freshmen	41—	88
Music		62
Spec. Course Industrial Pedagogy for Teachers		43
Total		1386
Counted twice—Winter Courses		35
Total number of students		1351

STUDENTS CLASSIFIED ACCORDING TO COUNTIES, STATES AND FOREIGN COUNTRIES.

Baker	23	Lane	45
Benton	229	Lincoln	11
Clackamas	55	Linn	70
Clatsop	26	Malheur	1
Columbia	16	Marion	62
Coos	14	Morrow	28
Crook	10	Multnomah	182
Curry	4	Polk	45
Douglas	34	Sherman	15
Gilliam	6	Tillamook	7
Grant	11	Umatilla	27
Harney	8	Union	26
Hood River	28	Wasco	20
Jackson	24	Washington	53
Josephine	12	Wheeler	8
Klamath	14	Wallowa	11
Lake	1	Yamhill	54

Number of counties in Oregon	34
Total number of counties represented	34
Whole number of students from Oregon	1190
Alaska	4
California	19
Colorado	2
Idaho	18
Illinois	7
Indiana	2
Iowa	9
Kansas	6
Kentucky	1
Michigan	3
Missouri	2
Montana	2
Nebraska	9
Nevada	1
New York	1
North Dakota	3
Pennsylvania	3
South Dakota	4
Texas	1
Utah	6
Washington	50
Wisconsin	2
Canada	2
District of Columbia	1
Hawaii	2
India	1
Total	1351

COMPARATIVE STATEMENT OF ENROLLMENT.

Year.	*Music, Special*	*Preparatory*	*Freshmen.*	*Sophomores*	*Juniors*	*Seniors*	*Graduate Students.*	*Special*	*Short Courses.*	*Counted Twice*	*Total*
1888-1889	..	36	33	14	14	0	0	0	...	..	97
1889-1890	..	67	55	17	6	0	6	0	...	.	151
1890-1891	..	76	83	24	15	0	3	0	...	..	201
1891-1892	..	86	63	28	19	9	3	0	...	..	208
1892-1893	..	98	123	31	18	7	5	0	...	..	282
1893-1894	..	36	103	71	21	5	4	0	...	..	240
1894-1895	..	47	85	64	52	13	0	0	...	..	261
1895-1896	..	80	175	63	54	9	14	2	...	..	397
1896-1897	..	*Sub-*	157	80	29	17	11	22	...	..	316
1897-1898	..	*Fresh-*	151	75	45	26	15	24	...	..	336
1898-1899	..	*men.*	164	79	30	36	15	14	...	..	338
1899-1900	..	42	145	74	40	36	20	48	...	..	405
1900-1901	..	44	177	72	42	37	9	55	...	..	436
1901-1902	14	38	247	83	30	38	10	28	...	..	488
1902-1903	21	54	232	97	40	36	12	32	17	..	541
1903-1904	48	85	191	80	46	39	3	28	10	..	530
1904-1905	29	75	304	97	36	49	11	33	46	..	680
1905-1906	50	110	293	104	46	49	18	37	28	..	735
1906-1907	32	132	327	136	46	66	14	24	56	..	833
1907-1908	20	141	413	177	71	80	15	67	173	1	1156
1908-1909	62	*164	336	265	156	118	22	38	225	35	1351

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* Secondary.

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①
19T3H
1909-10

General Campus View

CATALOGUE

OF THE

Oregon Agricultural College

FOR

1910 - 1911

With List of Students for 1909-1910

CORVALLIS, OREGON

PUBLISHED BY THE COLLEGE
MAY, 1910

CALENDAR

1910

JULY

S	M	T	W	T	F	S
--	--	--	--	--	1	2
3	4	5	6	7	8	9
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24	25	26	27	28	29	30
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AUGUST

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SEPTEMBER

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1911

JANUARY

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FEBRUARY

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MARCH

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MAY

S	M	T	W	T	F	S
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7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31	--	--	--
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JUNE

S	M	T	W	T	F	S
--	--	--	--	1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	--
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COLLEGE CALENDAR 1910-1911

1910.

July 20, Wednesday—Annual meeting of Board of Regents.

September 23, 24, 26, Friday, Saturday, Monday—Registration days.

September 23, 24, Friday, Saturday—Examination for admission.

September 27, Tuesday—Recitations begin.

November 24, Thursday—Thanksgiving Day; legal holiday.

December 21, Wednesday (noon)—Christmas recess begins.

1911.

January 3, Tuesday—Regular exercises resumed.

January 3, Tuesday—Winter short courses begin.

February 13-17, Monday to Friday (inclusive)—Farmers' week.

February 17, Friday—First semester ends.

February 28, Tuesday—Second semester begins.

May —, ———————— Military Inspection day.

May 30, Tuesday—Decoration Day; legal holiday.

June 11-13, Sunday to Tuesday—Commencement week.

BOARD OF REGENTS

OF THE

OREGON AGRICULTURAL COLLEGE

AND

EXPERIMENT STATION.

OFFICERS.

Hon. J. K. Weatherford, *President*	Albany
Hon. E. E. Wilson, *Secretary*	Corvallis
Hon. B. F. Irvine, *Treasurer*	Portland

EX-OFFICIO MEMBERS.

Hon. F. W. Benson, *Governor and Secretary of State*	Salem
Hon. J. H. Ackerman, *Supt. of Public Instruction*	Salem
Hon. Charles E. Spence, *Master of State Grange*	Canby

APPOINTED BY THE GOVERNOR.

	TERM EXPIRES.
Hon. John D. Olwell	Medford, 1912
Hon. William W. Cotton	Portland, 1912
Hon. Walter M. Pierce	La Grande, 1912
Mrs. Clara H. Waldo	Macleay, 1915
Hon. E. E. Wilson	Corvallis, 1915
Hon. B. F. Irvine	Portland, 1915
Hon. J. T. Apperson	Parkplace, 1918
Hon. J. K. Weatherford	Albany, 1918
Hon. C. L. Hawley	McCoy, 1918

STANDING COMMITTEES

OF THE

BOARD OF REGENTS

EXECUTIVE COMMITTEE.

J. K. Weatherford, *Chairman;* J. T. Apperson, E. E. Wilson, W. W. Cotton.

FINANCE COMMITTEE.

J. T. Apperson, *Chairman;* W. M. Pierce, C. L. Hawley.

COLLEGE COMMITTEE.

B. F. Irvine, *Chairman;* W. M. Pierce, C. L. Hawley.

STATION COMMITTEE.

W. M. Pierce, *Chairman;* J. D. Olwell, W. W. Cotton.

INSTITUTE COMMITTEE.

J. D. Olwell, *Chairman;* C. L. Hawley.

OFFICERS OF ADMINISTRATION AND INSTRUCTION

(*Arranged in Groups in the Order of Seniority of Appointment.*)

ADMINISTRATIVE COUNCIL.

WILLIAM JASPER KERR, D. Sc.,
PRESIDENT.

JAMES WITHYCOMBE, M. Agr.,
DIRECTOR OF THE EXPERIMENT STATION,
Professor of Animal Husbandry.

ARTHUR BURTON CORDLEY, M. S.,
DEAN OF THE SCHOOL OF AGRICULTURE,
Professor of Zoology and Entomology.

GRANT ADELBERT COVELL, M. E.,
DEAN OF THE SCHOOL OF ENGINEERING AND MECHANIC ARTS,
Professor of Mechanical Engineering.

JULIET GREER, A. B.,
DEAN OF THE SCHOOL OF DOMESTIC SCIENCE AND ART,
Professor of Domestic Science.

JOHN ANDREW BEXELL, A. M.,
DEAN OF THE SCHOOL OF COMMERCE,
Professor of Business Administration.

COLLEGE COUNCIL.

(The members of the Administrative Council are also members of the College Council.)

FREDERICK BERCHTOLD, A. M.,
Professor of English Language and Literature.

JOHN B. HORNER, A. M., Litt. D.,
Professor of History and Political Science.

GORDON VERNON SKELTON, C. E.,
Professor of Civil Engineering.

EDWARD RALPH LAKE, M. S.*
Professor of Botany and Forestry.

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*On leave of absence.

JOHN FULTON, M. S.,
Professor of General and Analytical Chemistry.

THOMAS HENRY CRAWFORD, A. M.,
Professor of Commercial Law.

CLAUDE ISAAC LEWIS, M. S. A.,
Professor of Horticulture.

FRED LEROY KENT, B. Agr.,
Professor of Dairy Husbandry.

CHARLES LESLIE JOHNSON, B. S.,
Professor of Mathematics.

EMILE FRANCIS PERNOT, M. S.,
Professor of Bacteriology.

CLARENCE MELVILLE McKELLIPS, Ph. C.,
Professor of Pharmacy.

GERARD TAILLANDIER,
Professor of Modern Languages.

U. G. McALEXANDER, Capt. 13th Inf., U. S. A.,
COMMANDANT,
Professor of Military Science and Tactics.

JAMES DRYDEN,
Professor of Poultry Husbandry.

HENRY DESBOROUGH SCUDDER, B. S.,
Professor of Agronomy.

HENRY MARTIN PARKS, B. S., E. M.,
Professor of Mining Engineering.

THOMAS MOONEY GARDNER, M. M. E.,
Professor of Electrical Engineering.

CHARLES EDWARD BRADLEY, M. S.,
Professor of Agricultural Chemistry.

EMMETT DUNN ANGELL,
DIRECTOR OF THE GYMNASIUM,
Professor of Physical Education.

WILLIAM FREDERICK GASKINS, B. S.,
Professor of Music.

WILLIAM ARTHUR JENSEN,
Recorder of the Faculties.

WILLIAM ROBINSON BOONE,
Professor of Piano.

EDWIN DEVORE RESSLER, A. M.,
DIRECTOR OF THE SUMMER SCHOOL,
Professor of Industrial Pedagogy.

GEORGE WILCOX PEAVY, M. S.,
Professor of Forestry.

FARLEY DOTY McLOUTH, B. S.,
Professor of Art.

WILLIBALD WENIGER, Ph. D.,
Professor of Physics.

RALPH DORN HETZEL, A. B., LL. B.,
Professor of Public Speaking.

HERBERT SPENCER JACKSON, A. B.,
Professor of Botany.

IDA BURNETT CALLAHAN, B. S.,
Assistant Professor of English Language and Literature.

MARK CLYDE PHILLIPS, B. M. E.,
SUPERINTENDENT OF HEAT, LIGHT, AND POWER,
Assistant Professor of Mechanical Engineering.

IDA ANGELINE KIDDER, A. B., B. L. S.,
Librarian.

NICHOLAS TARTAR, B. S.
Assistant Professor of Mathematics.

CHARLES ARTHUR COLE, M. S.,
Assistant Professor of Pomology.

ARTHUR LEE PECK, B. S.,
Assistant Professor of Landscape Gardening.

ELMER POLIC JACKSON, B. S.,
Assistant Professor of Technical Woodwork.

MARION SYDDUM VAN LIEW,
Assistant Professor of Domestic Science.

ERMINE L. POTTER, B. S.,
Assistant Professor of Animal Husbandry.

GEORGE ROBERT HYSLOP, B. Sc.,
Assistant Professor of Agronomy.

JUANITA ROSENDORF, B. S.,
Acting Registrar.

FACULTY.

(The members of the Administrative and College Councils are also members of the Faculty.)

HARRY L. BEARD, B. S.,
DIRECTOR OF CADET BAND,
Instructor in Mathematics.

LOREN BURTON BALDWIN, A. M.,
Instructor in English.

EARL VINCENT HAWLEY, B. S.,
Instructor in Electrical Engineering.

WILLIAM McCAULLY PORTER,
Instructor in Forging.

ELMER POLIC JACKSON, B. S.,
Foreman in Carpentry.

ARIEL MIRIAM EWING,
Instructor in Domestic Art.

HELEN HYDE TOBIN,
Instructor in Domestic Art.

CARL LAFAYETTE KNOPF, M. E.,
Instructor in Mechanical Engineering.

WINIFRED MAUDE WILLIAMS, B. Ph.,
Instructor in Public Speaking and in Physical Culture for Women.

EDWARD BENJAMIN BEATY, B. S.,
Instructor in Mathematics.

EARL PAUL HARDING, B. S.,
Instructor in Chemistry.

GENEVIEVE BAUM-GASKINS,
Instructor in Voice.

MYRTIE CLARK VAN DEUSEN,
Instructor in Domestic Science.

ARTHUR GEORGE BOUQUET, B. S.,
Instructor in Horticulture.

OTTO GERALD SIMPSON, B. S.,
Instructor in Dairy Husbandry.

SAMUEL HERMAN GRAF, E. E.,
Instructor in Mechanical Engineering.

WILFORD WOODRUF GARDNER, C. E.,
Instructor in Civil Engineering.

RENTON KIRKWOOD BRODIE, B. S.,*
Instructor in Chemistry.

HERBERT EDWARD COOKE, B. S.,
Instructor in Mining Engineering.

ROSE ZANDER ANGELL,
Instructor in Home Nursing.

EDGAR RAYMOND SHEPARD, A. M.,
Instructor in Physics and Electrical Engineering.

GEORGE CLYDE MATHEWS, A. B.,
Instructor in English.

EMMETT B. MOORE,
Instructor in Commerce.

ROBERT HENRY RODGERS, B. S.,
Instructor in Patternmaking.

GERTRUDE EWING McELFRESH, A. B.,
Instructor in English.

MYRTLE ELIZABETH KNEPPER, B. S.,
Assistant Librarian.

ANNA G. SABY, M. A.,
Instructor in Spanish and Latin.

SIDNEY WILLIS FRENCH, E. M.,
Instructor in Mining Engineering.

FLETCHER AMOS GOULD, B. S.,
Instructor in Civil Engineering.

MILO REASON DAUGHTERS, A. M.,
Instructor in General and Analytical Chemistry.

WILBUR LOUIS POWERS, M. S.,
Instructor in Agronomy.

EDWARD CLEVELAND CALLOWAY, B. S.,
Instructor in Pharmacy.

ALICE LEORA EDWARDS, B. S.,
Instructor in Zoology and Entomology.

HELEN MARGARET GILKEY, B. S.,
Instructor in Botany.

---

*On leave of absence.

JAMES ARBUTHNOT, B. S.,
Instructor in Physical Education.

MAY BABBITT-RESSLER,
Instructor in Piano.

FLORENCE BOWDEN,
Instructor in Latin and Music.

GEORGE R. SAMSON, B. S.,
Instructor in Animal Husbandry.

JULES FERNANDO MOREL, M. D. C.,
Instructor in Veterinary Science.

EDITH CARTER KUNEY, A. B.,
Instructor in Modern Language.

WILLIAM E. LAWRENCE, B. S.,
Instructor in Botany.

WILLIAM HOWARD EIS,
Instructor in Music.

....
Instructor in Electrical Engineering.

....
Instructor in Forestry.

....
Instructor in Mechanical Engineering.

....
Instructor in Zoology and Entomology.

....
Instructor in Chemistry.

....
Instructor in Mathematics.

....
Instructor in English.

....
Instructor in Chemistry.

ASSISTANTS.

HELEN MARGARET GILKEY, B. S.,
Assistant in Botany.

GLEN DeHAVEN, M. S.,
Assistant in Bacteriology.

FRANCES HUSTON, B. S.,
Assistant in Physical Culture for Women.

ALFRED GUINN LUNN,
Assistant in Poultry Husbandry.

JAMES KOEBER, B. S.,
Assistant in Agronomy.

FRED EDGERTON EWART, B. S.,
Assistant in Electrical Engineering.

IDA ROBINSON-MOORE,
Assistant in Commerce.

FRED EUGENE PERNOT, B. S.,
Assistant in Electrical Engineering.

....
Assistant in Domestic Science.

....
Assistant in Domestic Art.

OTHER OFFICERS.

WILLIAM HORACE KERR,
Manager of the Business Office.

GEORGE BRELSFORD KEADY,
Foreman Printing Plant.

LETTITIA PEARL LEONARD, B. S.,
Bookstore Clerk.

OTTO FRANK LUDWIG HERSE,
Assistant Printer.

JOHN HOLT EDWARDS,
Head Janitor.

JOHN G. TAYLOR,
Foreman Power and Heating Plant.

DOROTHY YEGAN,
Stenographer.

STANDING COMMITTEES.

The President of the College is ex-officio a member of all standing committees.

1. *Entrance Examinations*—Professors Tartar, McLouth, Mr. Baldwin.

2. *Scholarship and Graduation*—Professors Berchtold, Skelton, Kent, Weniger.

3. *Graduate Students and Advanced Degrees*—Professors Skelton, Cordley, Ressler, Weniger.

4. *Credentials and Advanced Standing*—Professors Ressler, Berchtold, Johnson.

5. *Catalogue*—Professors Berchtold, Johnson, Callahan.

6. *Schedules*—Professor Johnson, Mr. Beaty, Mr. Graf.

7. *Attendance*—Professors Fulton, McAlexander, Phillips.

8. *Dormitories* - Professors Bexell, Greer, Hetzel, Mr. Cooke, Mr. Ewart.

9. *Student Organizations and Activities*—Professor Hetzel, Mr. Baldwin, Miss Williams, Mr. Mathews.

10. *Student Domiciles*—Professor Horner, Mrs. McElfresh, Mr. Simpson.

11. *Social Entertainments*—Professors Bradley, Gaskins, McLouth, Callahan, Mr. Bouquet.

12. *Athletics*—Professors Angell, Cordley, Johnson, McKellips, Peavy, Mr. Pilkington.

13. *College Extension*—Professors Withycombe, Bexell, Dryden, Greer, Peavy.

14. *College Exhibits*—Professors Peavy, Cordley, Greer, Covell.

STAFF OF THE AGRICULTURAL EXPERIMENT STATION

WILLIAM JASPER KERR, D. Sc.,
PRESIDENT.

JAMES WITHYCOMBE, M. Agr.,
DIRECTOR.
Animal Husbandman.

ARTHUR BURTON CORDLEY, M. S.,
Entomologist.

CLAUDE ISAAC LEWIS, M. S. A.,
Horticulturist.

FRED LEROY KENT, B. Agr.,
Dairy Husbandman.

JAMES DRYDEN,
Poultry Husbandman.

HENRY DESBOROUGH SCUDDER, B. S.,
Agronomist.

CHARLES EDWARD BRADLEY, M. S.,
Chemist.

GEORGE WILCOX PEAVY, M. S.,
Forester.

HERBERT SPENCER JACKSON, A. B.,
Botanist and Plant Pathologist.

HERMAN VANCE TARTAR, B. S.,
Research Assistant in Chemistry.

CHARLES ARTHUR COLE, M. S.,
Assistant Horticulturist.

ARTHUR LEE PECK, B. S.,
Floriculturist and Landscape Gardener.

ERMINE L. POTTER, B. S.,
Assistant Animal Husbandman.

GEORGE ROBERT HYSLOP, B. Sc.,
Assistant Agronomist.

ARTHUR GEORGE BOUQUET, B. S.,
Olericulturist.

OTTO GERALD SIMPSON, B. S.,
Assistant Dairy Husbandman.

FRED LLEWELLYN GRIFFIN, B. S.,
Research Assistant in Plant Pathology.

EDWARD JACOB KRAUS, B. S.,
Research Assistant in Horticulture.

BERT PILKINGTON, B. S.,
Assistant Chemist.

WILBUR LOUIS POWERS, M. S.,
Assistant Agronomist.

JULES FERNANDO MOREL, M. D. C.,
Veterinarian.

RALPH WALDO REES, B. S.,
Research Assistant in Horticulture.

FRANK ROSS BROWN, B. S.,
Orchard Foreman

LYMAN BUNDY, B. S.,
Assistant Chemist.

GLEN DEHAVEN,
Assistant Bacteriologist.

ALFRED GUINN LUNN,
Assistant Poultryman.

HELEN LUCILE HOLGATE, B. S.,
Station Clerk.

....
Assistant in Entomology.

....
Farm Foreman

UNION BRANCH EXPERIMENT STATION.

ROBERT WITHYCOMBE, B. S.,
SUPERINTENDENT.

PAUL HERMAN SPILLMAN, B. S.,
Assistant Horticulturist.

UMATILLA BRANCH EXPERIMENT STATION.

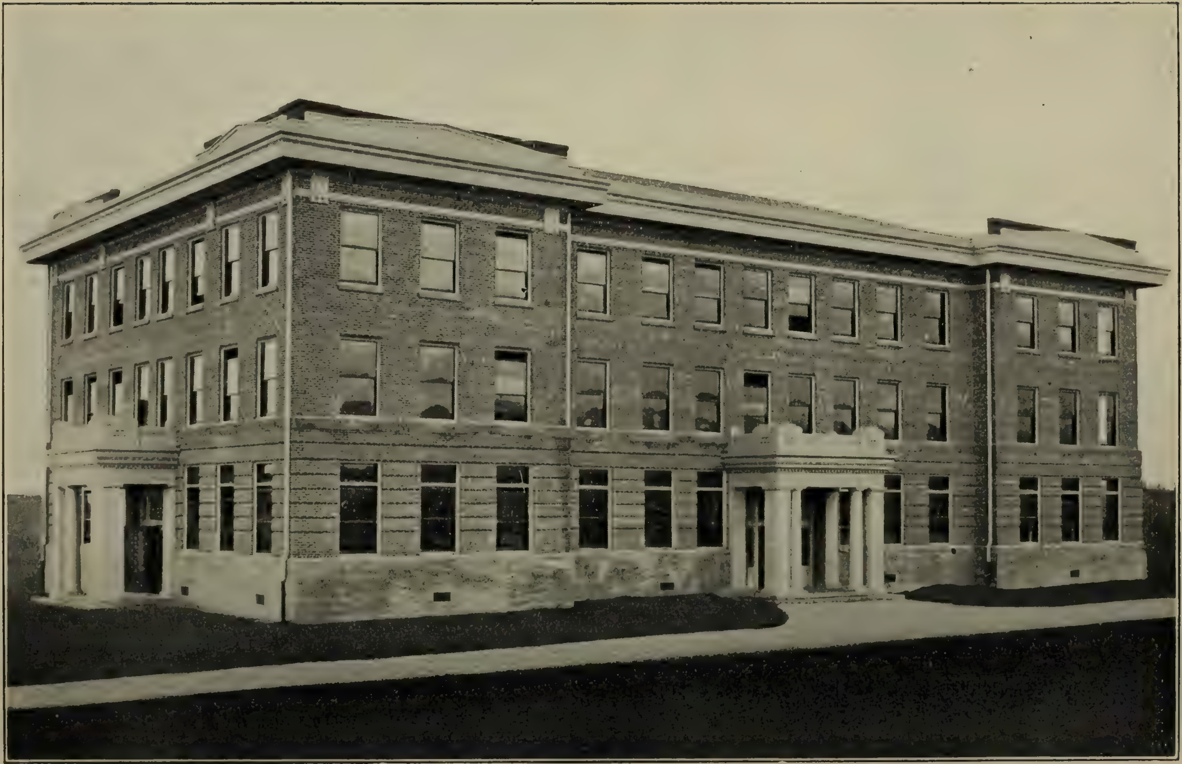
RALPH WILMER ALLEN, B. S.,
SUPERINTENDENT.

DRY-FARM BRANCH EXPERIMENT STATION.

H. J. C. UMBERGER,
SUPERINTENDENT.

ORREN BEATY, B. S.,
Foreman.

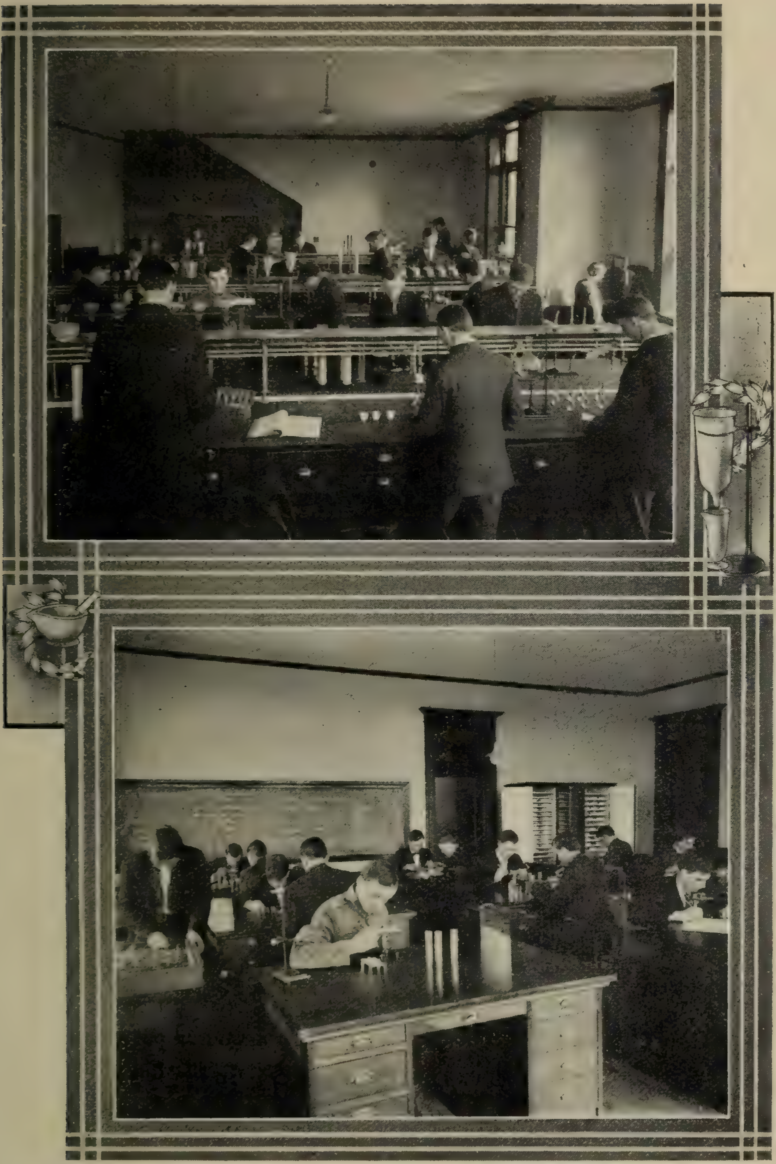
Agricultural Hall



Agronomy Building

College Barns

Views in Agronomy Laboratories



Agronomy—Testing Soils; Examining Commercial Seeds

Views in Farm Mechanics Laboratory

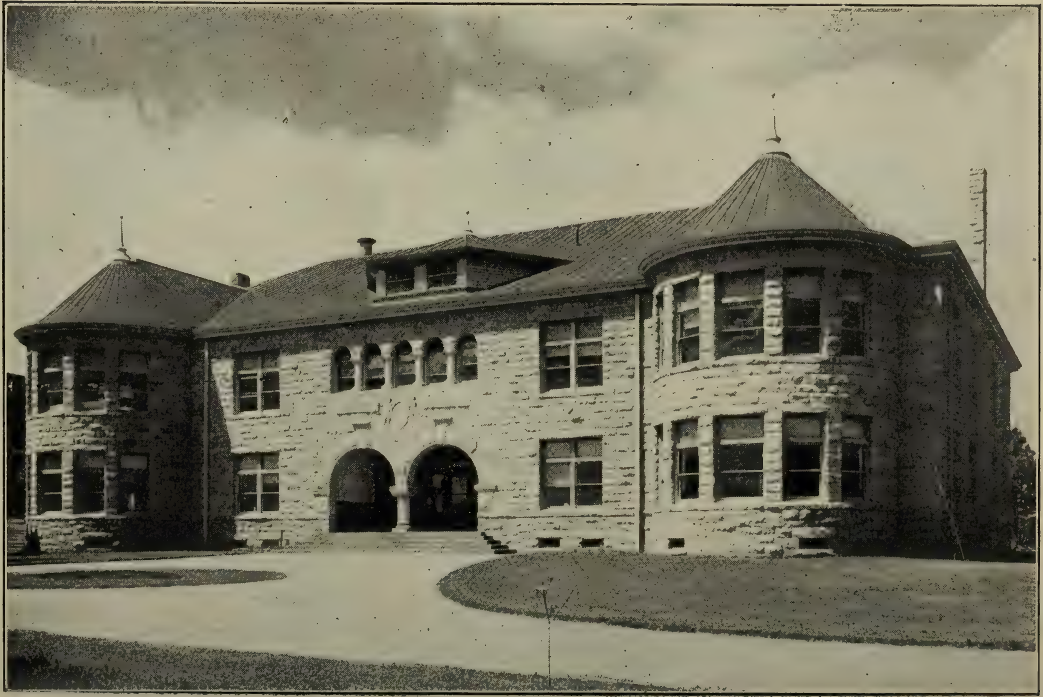
Classes in Animal Husbandry—Demonstrations and Judging

Dairy Scenes—Class in Stock Judging

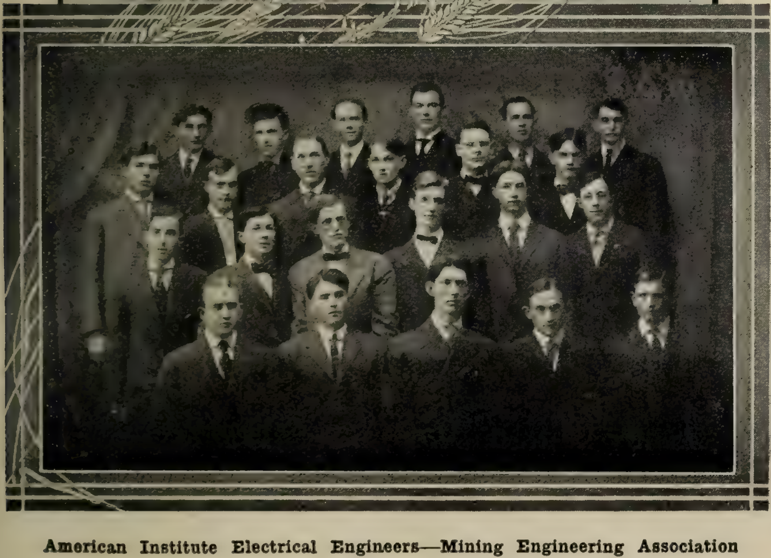
Courses in Walnut Grafting and Landscape Gardening

Horticultural Classes in Pruning, Grafting, Packing, Apple Harvesting

Poultry Plant—Colony Houses; Incubator House



Mechanical Hall

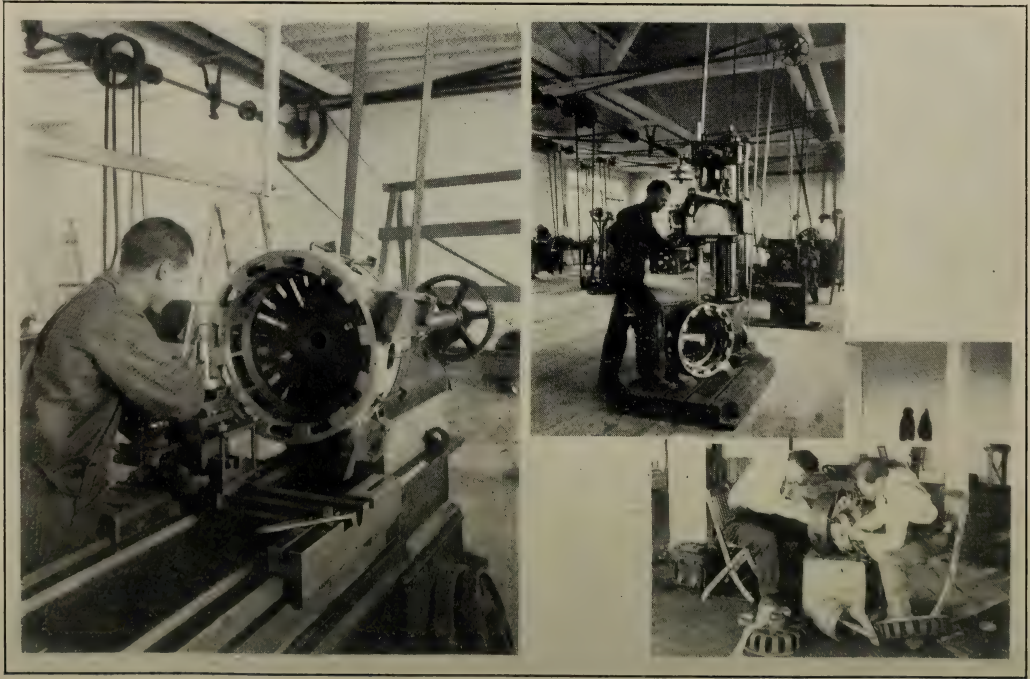


American Institute Electrical Engineers—Mining Engineering Association

Civil Engineering—Students in Surveying

Classes in Assaying and Mechanical Drawing

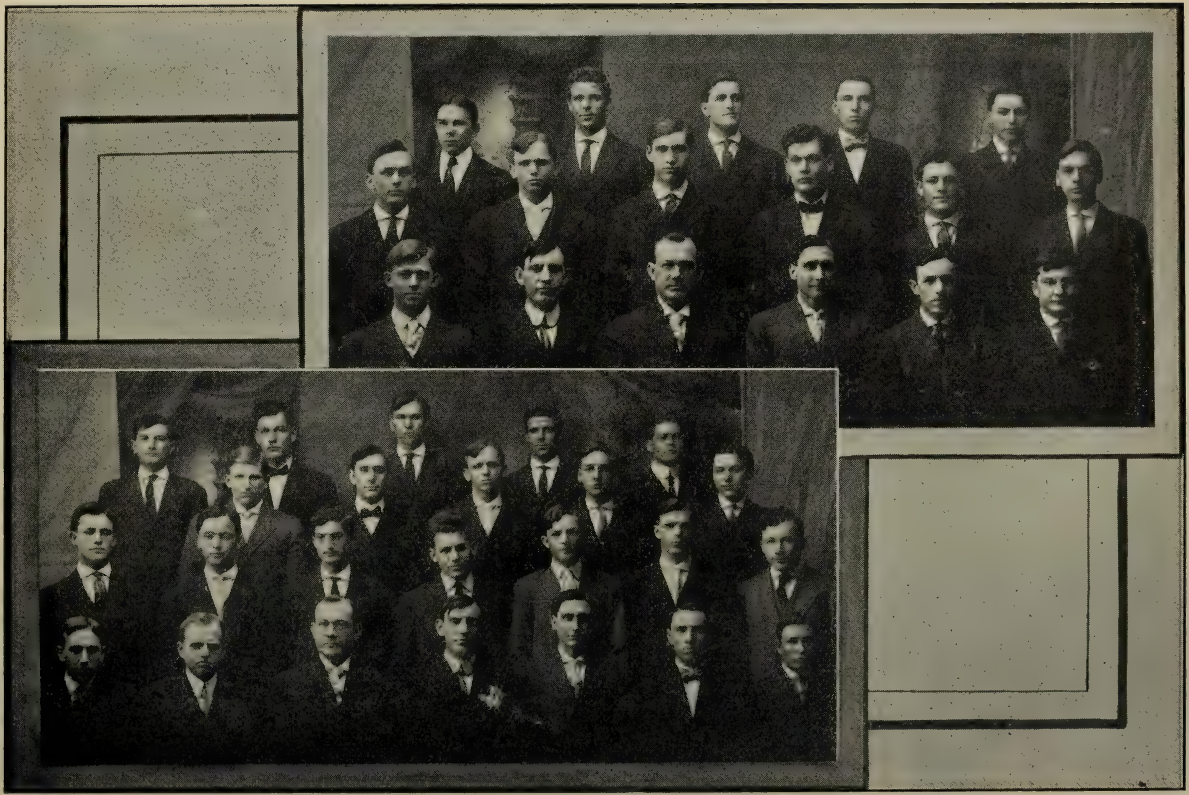
Experiments with Testing Machine—Lathe Work in Machine Shop



Views in Engineering Laboratory

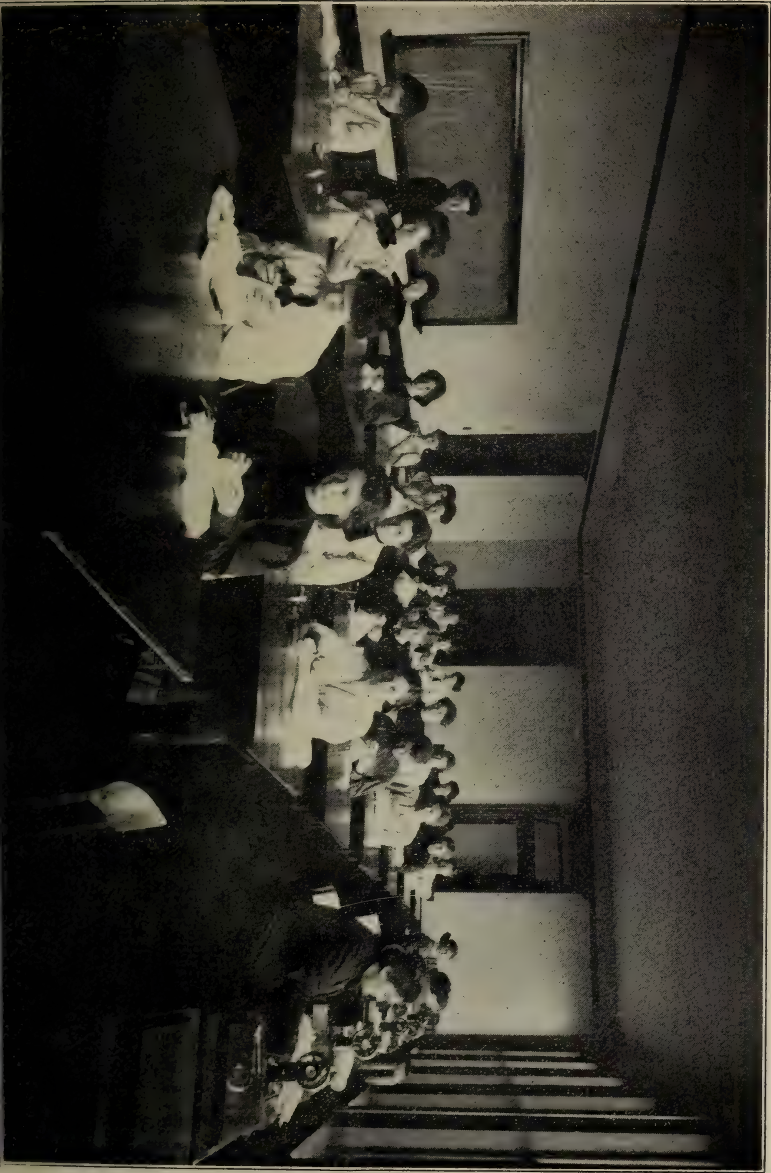
Views in Carpentry Shop

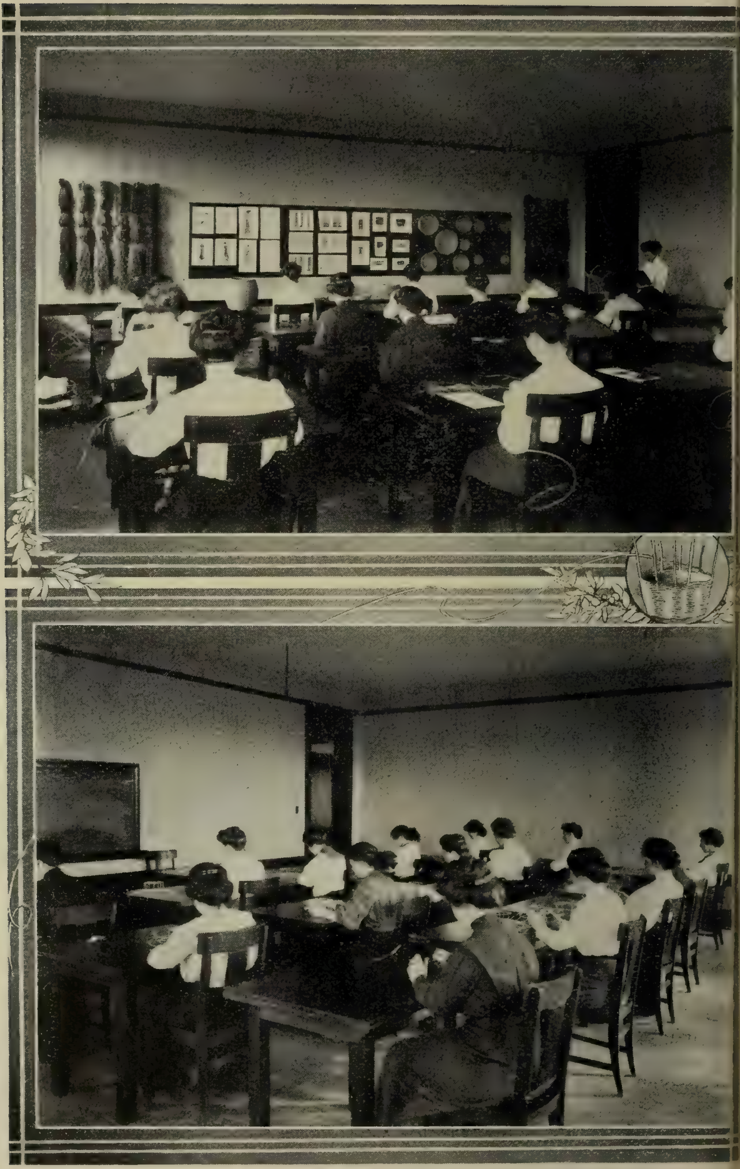
View in Forge Shop



Engineering Associations—American Institute Electrical Engineers; Electrical Engineering Association

Classes in Household Bacteriology—Corners in Bacteriological Laboratory



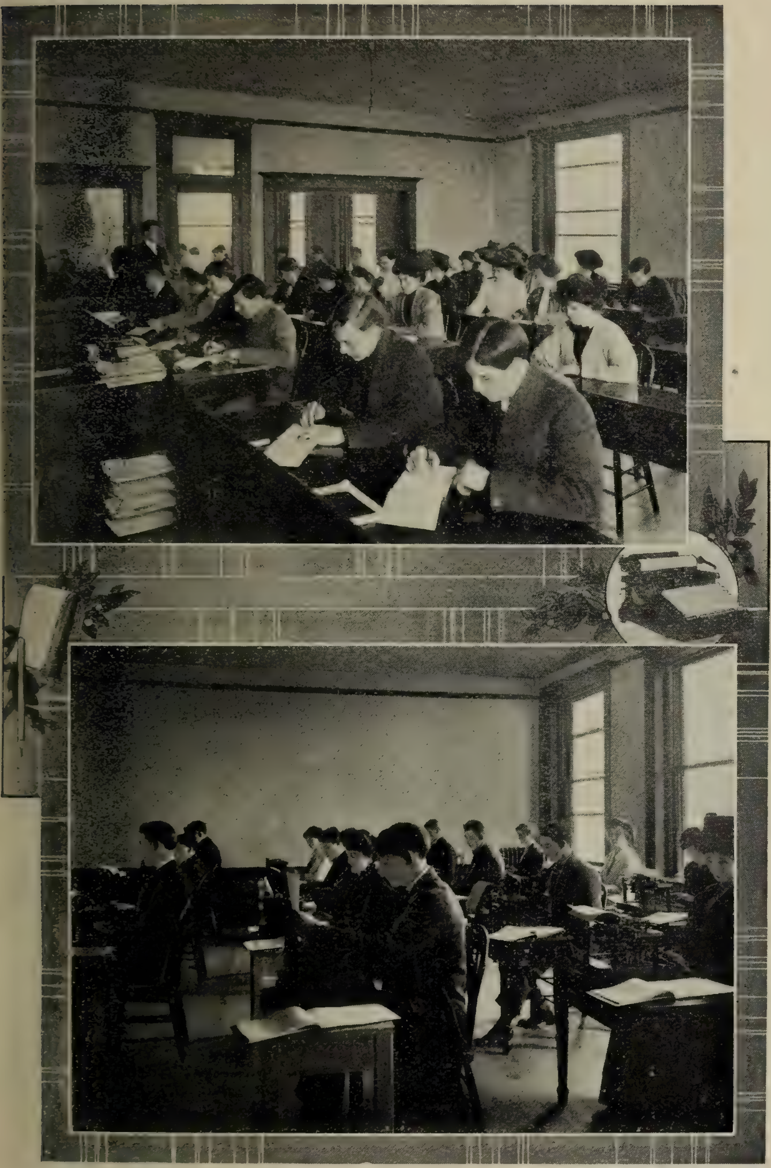


Classes in Basketry and Weaving, and in Millinery

Waldo Hall Club

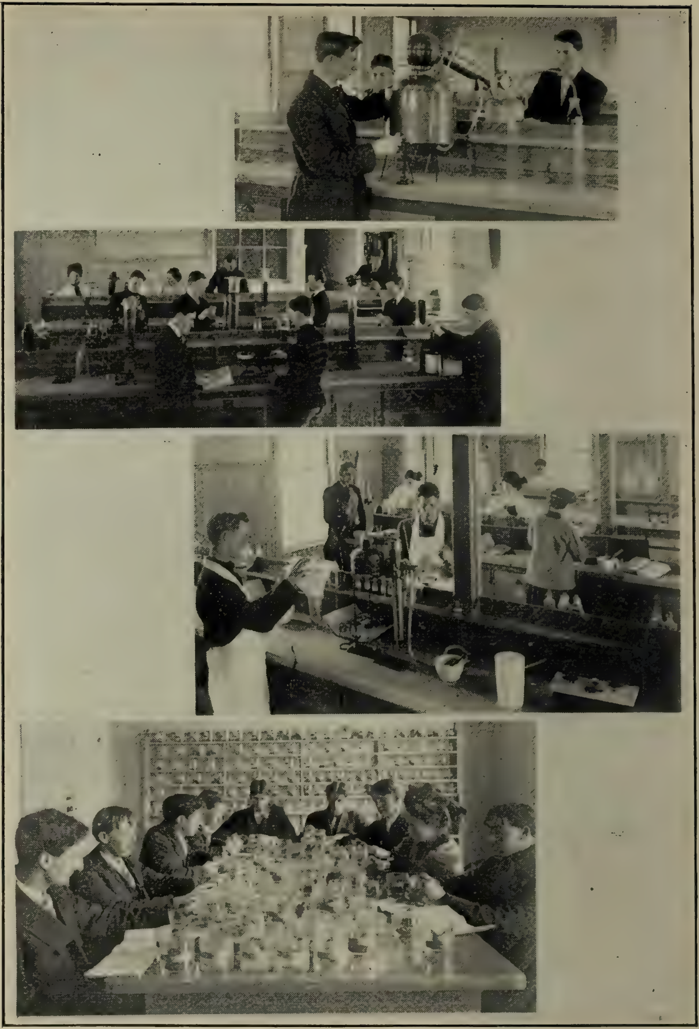
Student Rooms—Waldo Hall

Margaret Snell Club

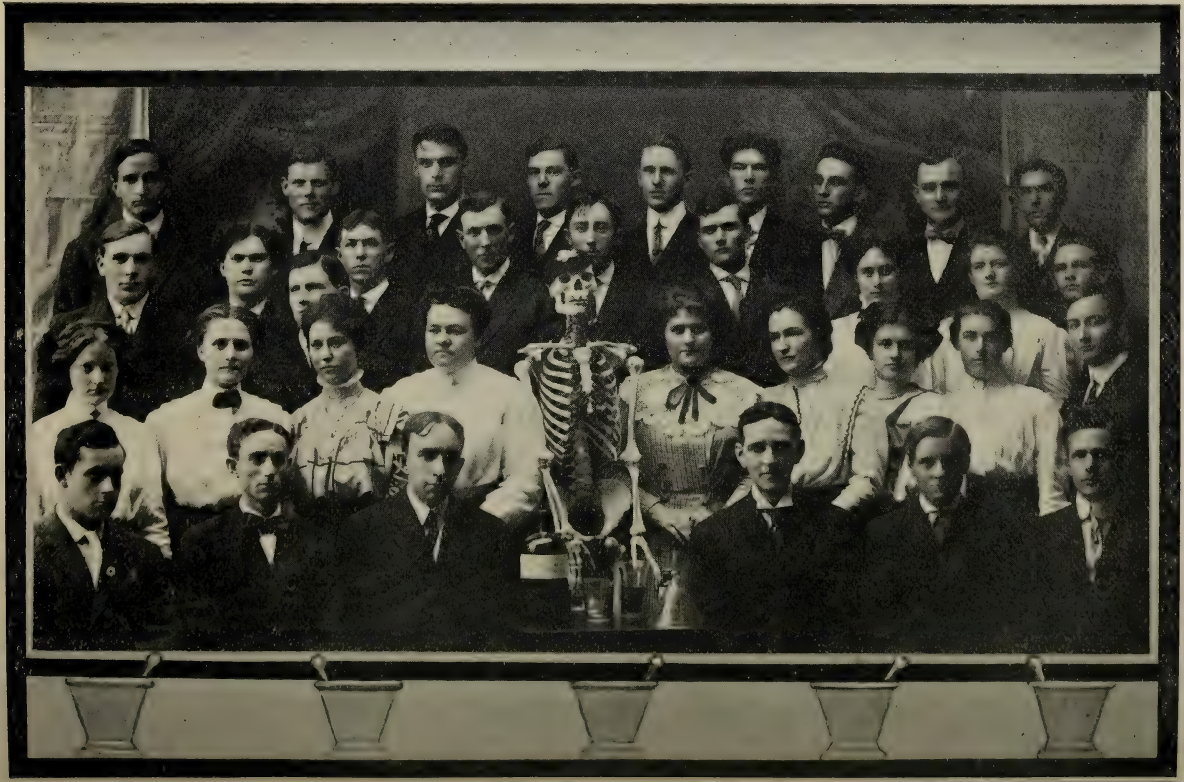


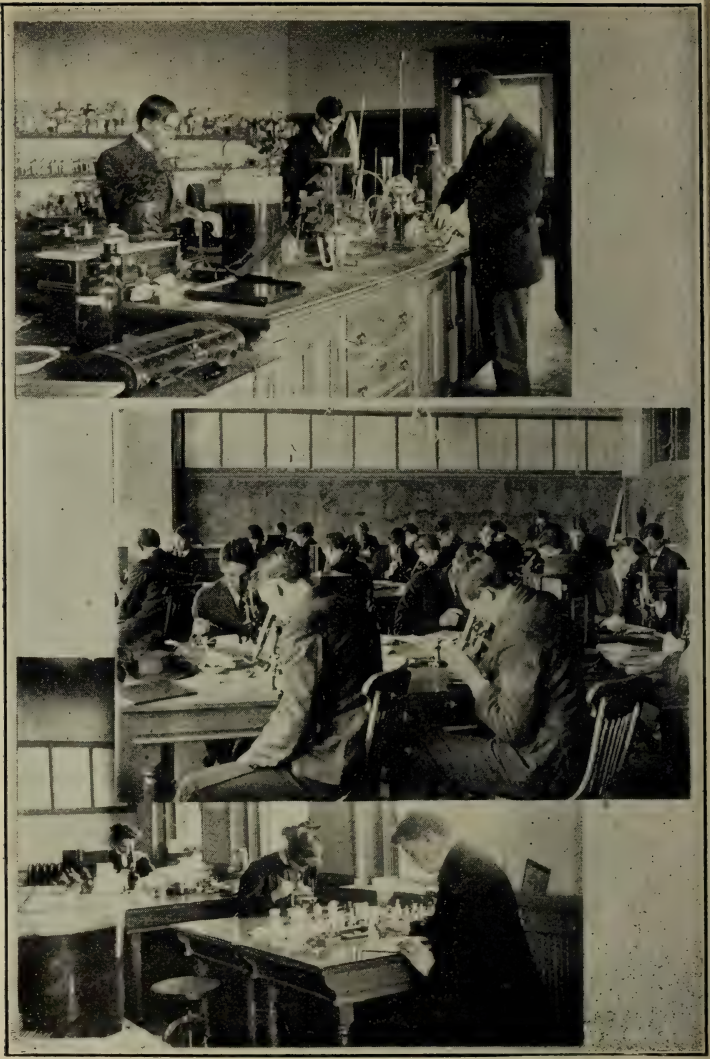
Classes in Stenography and Typewriting

Pharmacy Building



Views in Pharmaceutical Laboratories





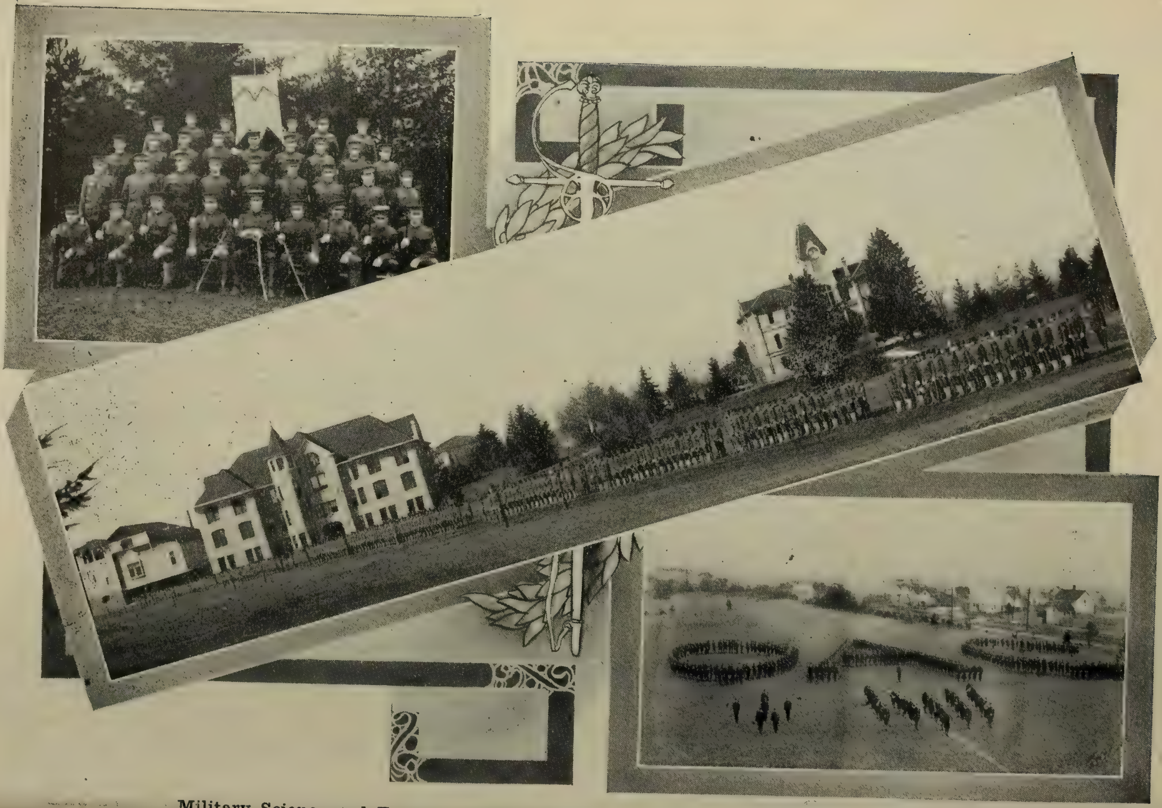
Views in Zoological Laboratories

Drawing—Life Class; Engineering Students in Freehand Drawing

Administration Building

Science Hall

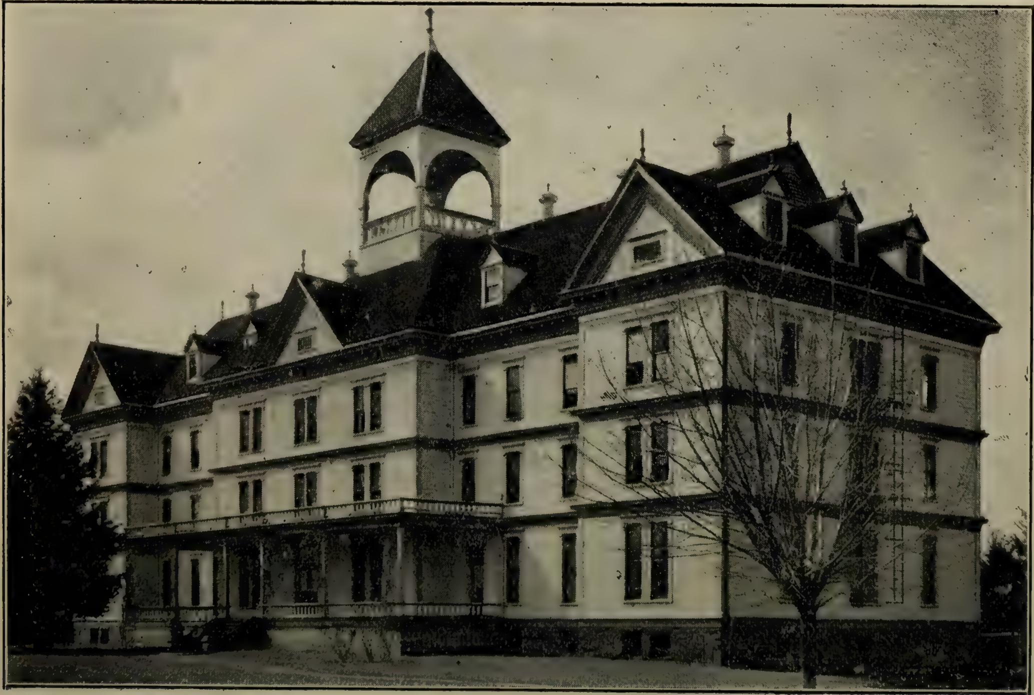
ARMORY.



Military Science and Tactics—Banner Company; Regiment;

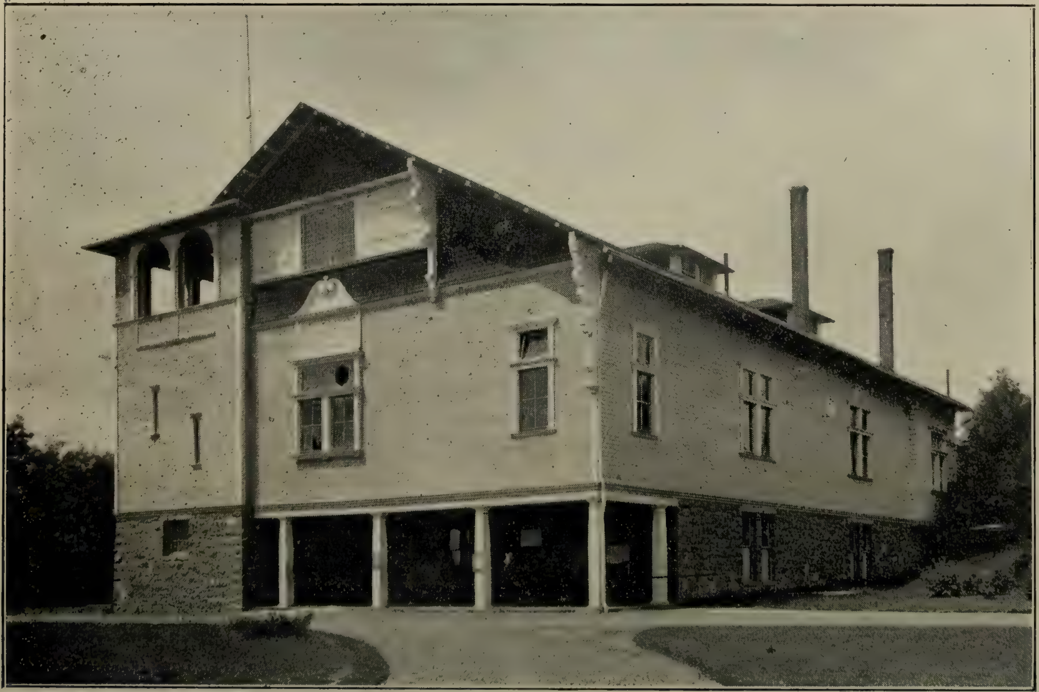
Cadet Officers—Staff Officers; Color Bearers; Field Officers

Cadet Band



Cauthorn Hall—Men's Dormitory

Cauthorn Hall Club—Rooms in Men's Dormitory



Gymnasium

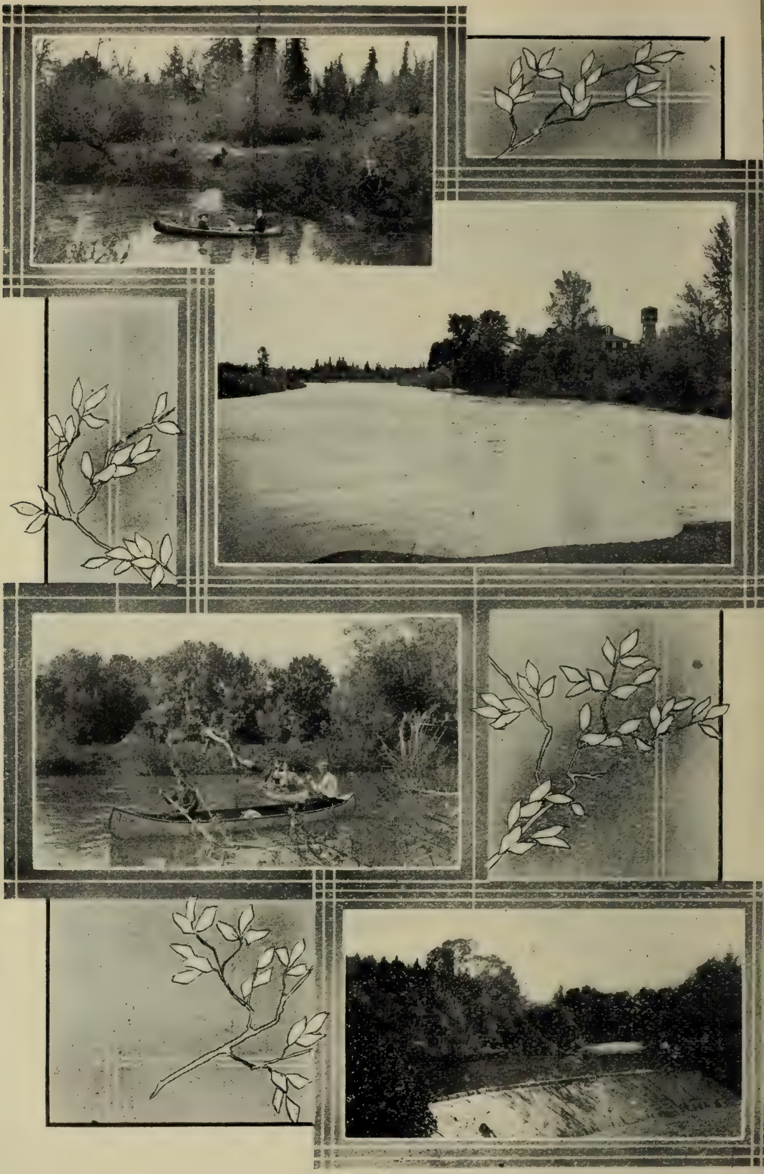
O.A.C.
OREGON
O.A.C.

Musical Societies—Mandolin Club; College Orchestra

Shepard Hall—Exterior and Interior

Christian Associations—Y. W. C. A. Cabinet; Y. M. C. A. Cabinet

Views on College Campus



River Scenes near College Campus

Oregon Agricultural College

GENERAL INFORMATION

In pursuance of an Act of Congress, approved by President Lincoln, July 2, 1862, a grant of land was made to each State in the Union to the amount of thirty thousand acres, or its equivalent, for each Senator and Representative in Congress to which the State was entitled by the apportionment of the census of 1860. The proceeds under this Act were to constitute a perpetual fund, the principal of which was to remain forever undiminished; but the interest arising from said fund was to be inviolably applied by each State which should avail itself of the benefits of the Act, to the support and maintenance of a ''College where the leading objects shall be, without excluding other scientific and classical studies, and including military tactics, to teach such branches of learning as are related to agriculture and the mechanic arts, in such manner as the legislatures of the states may respectively prescribe, in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions in life.'' Ninety thousand acres of land were apportioned to Oregon, and by an Act approved October 9, 1862, the Legislative Assembly of Oregon accepted the provisions of the congressional law.

The Land Grant Fund. The subsequent sale of this land has netted the College approximately $200,000. This at present is invested in securities bearing six per cent interest. The Act of Congress of 1862 explicitly states that no part of the funds so appropriated or the interest arising therefrom shall be used for the purchase, erection, or maintenance of any building or buildings.

The Hatch Fund. Under an Act of Congress, approved March 2, 1887, the College receives $15,000 a year for the maintenance of an Agricultural Experiment Station, "to aid in acquiring and diffusing among the people useful and practical information on subjects connected with agriculture."

The Morrill Fund. On August 30, 1890, an Act was passed by Congress "to apply a portion of the proceeds of the public lands to the more complete endowment and support of the colleges for the benefit of agriculture and the mechanic arts established under the provisions of the Act of 1862." This Act provided that in 1890 $15,000 should be paid to each of the land grant colleges, and that the amount so appropriated should be increased by the sum of $1,000 annually for ten years, and that thereafter the amount annually appropriated should continue to be $25,000. Under an Act of Congress, approved March 4, 1907, known as the Nelson Amendment, this fund is increased by the sum of $5,000 for the first fiscal year ending June 30, 1908, and by an additional $5,000 for each succeeding year until the total annual amount is $50,000.

The Adams Fund. An Act of Congress, approved March 20, 1906, appropriated an initial $5,000 for that year, and $2,000 additional for each year thereafter until the annual amount shall reach $15,000. This fund is "to be applied only to paying the necessary expenses of conducting original researches or experiments bearing directly on the agricultural industry" of the State and therefore supplements the Hatch Fund in the maintenance of the Experiment Station.

In addition to the income from the national government, the College is dependent upon the State Legislature for such appropriations as are required for the maintenance and development of the institution, in accordance with the provisions of the Acts of Congress, and in response to the industrial and educational demands of the State.

HISTORY.

As there were no State colleges in Oregon in 1868, the legislature of that year, which provided for the location of the land received under the Act of 1862, gave the interest on the funds derived from the sale of the land to the Corvallis College, a private institution in Benton County, which was then under the control of the

Methodist Episcopal Church, South. For a number of years, none of the land granted was sold, and the legislature made small annual appropriations for the support of the school.

In 1885, the church voluntarily relinquished its claim on the funds of the college, and the State assumed control of the institution. The legislature of that year provided for the ''permanent location of the State Agricultural College at Corvallis in Benton County,'' on condition that the citizens of said county should, within four years, erect on the ''farm containing thirty-five acres in the immediate vicinity of said city, known as the Agricultural College Farm, brick buildings for the accommodation of said State Agricultural College at a cost of not less than $20,000.'' During the summer of 1887, the corner stone of the building erected by the citizens of Benton County was laid by the Governor of Oregon, amid imposing ceremonies.

This structure, now known as the Administration Building, was the nucleus around which other buildings soon began to cluster as necessity and growing interest demanded. For a year or two there was ample room; but, as the institution grew, more land was needed and provided, and instead of thirty-five acres originally comprising campus and grounds, the institution now owns two hundred and twenty-four acres; and instead of one structure, there are now eighteen. There has also been an increase in the attendance from ninety-seven to upwards of sixteen hundred students. Twenty years ago, most of the students came from Benton and neighboring counties. Now, every county in Oregon, twenty other States, and six foreign countries are represented. The increase in the number of students called for an increase in the number of the faculty. This body, from the number of five in 1884, has grown until it now closely approaches the five-score mark. Other features usually found in connection with progressive educational institutions have grown in equal ratio. The courses have been strengthened, the standard has been advanced, and other improvements made from time to time, which have added to the thoroughness and efficiency of the work.

GOVERNMENT.

The general government of the College is vested primarily in the Board of Regents, and, under their control, in four other administrative bodies,—the Administrative Council, the College Council, the Faculty, and the Experiment Station Staff. These bodies, in the exercise of their respective duties, determine the questions of policy and regulate all matters relating to the interests of the institution.

The Board of Regents consists of thirteen members, of whom the Governor, the Secretary of State, the Superintendent of Public Instruction, and the Master of the State Grange are ex-officio members. The other nine members are appointed by the Governor with the approval of the State Senate, and hold office for a term of nine years. Under a law of the State Legislature, passed in 1885, the Board of Regents constitutes a body corporate, under the name of ''The Board of Regents of the State Agricultural College, * * * with power to sue and be sued, and to make contracts,'' and to enact such regulations as may be necessary for the maintenance and development of the College.

The Administrative Council consists of the President of the College, the Director of the Experiment Station, and the Deans of the different Schools. The function of this Council is to consider and determine the larger questions of policy and administration.

The College Council is composed of the President of the College, the professors, and assistant professors. This body considers all general questions relating to the educational work and policy of the College; arranges and correlates the courses of study, and determines the requirements for admission and graduation. The different committees of the College Council, representing the several schools of instruction, have charge of the enrollment and progress of students in the respective schools, and investigate the records of all candidates for graduation.

The College Faculty includes the President, the professors, the assistant professors, the librarian, the instructors, and the assistants. It considers routine questions of method and discipline for which it is particularly well adapted, being in close contact with all that pertains to student interests and student life.

The Experiment Station Staff includes the President of the College, the Director of the Experiment Station, and the heads of the various departments of the School of Agriculture that are engaged in research and experimental work. The members of this staff are engaged in the investigation of problems encountered in he development of the agricultural interests of the State. They also distribute information regarding their investigations by means of correspondence, circulars and station bulletins.

The Students. The College does not undertake to prescribe in detail either its requirements or prohibitions. Students are met on a plane of mutual regard and helpfulness. Since the advantages of the institution are provided at public expense, the students are under special obligation to perform faithfully all their duties, not only to the College, but also to the State and to the community. Whenever the deportment of any student is such that his influence is inimical to the interests of the institution, he will be relieved from further attendance.

PURPOSE AND SCOPE.

The purpose of the College is to provide, in accordance with the Acts of Congress under which it is maintained, a liberal, thorough, and practical education,—an education that will afford the training required for efficient service in different branches of industry. The distinctive technical work covers the three great fields of production, manufacture, and commerce. Special attention is given to the application of science. All the practical work in the laboratories, in the shops, in the orchards, and on the farm, is based upon scientific principles. While the industrial or technical work is emphasized, the importance of a thorough general training, of mind development, and culture, is recognized in all of the work throughout the institution. The object is to meet the demand for a broad and general education, supplemented by special technical training.

The work, therefore, covers a broad field, including technical courses along the different lines of agriculture and forestry, commerce, pharmacy, engineering, and household technology; with the necessary training in the basic subjects of mathematics and the natural and physical sciences; and also the general training in language, literature, history, and civics, which constitutes an essential part of a liberal education.

In all the work of the institution, the object is to train the mind, the eye, and the hand to act in unison; to unfold and coordinate the faculties of mind and body; to develop a symmetrical manhood and womanhood, and a just appreciation of clean, upright citizenship.

LOCATION.

The seat of the Oregon Agricultural College is Corvallis, a city of over five thousand inhabitants, situated at the head of navigation on the Willamette River. As the name implies, it is in the heart of the far-famed Willamette Valley. It is readily accessible by railway from all parts of the State; it has free mail delivery; there are many churches, and no saloons, and the moral tone is equal to that of any city within the boundaries of the State. It is a city of homes, and its people are justly proud of the great institution within their midst, and jealously guard its good name.

Situated on high, well-drained land, open to the invigorating sea-breeze, Corvallis is one of the most healthful cities in the State. It has never been visited by any dangerous epidemic disease, and the possibilities of such visitation in the future appear remote, for the city has a complete modern sewerage system and a first-class gravity water system, supplied from springs high up the slope of Mary's Peak, the tallest mountain in the Coast Range, some fifteen miles away to the west. The city and its environs are conducive to wholesome student and home life. It has an ample supply of pure mountain water for all domestic and sanitary purposes. The atmosphere is purified, and the climate ameliorated by almost constant ocean breezes,—warm in winter and cool in summer. The surrounding landscape elicits praise from all who behold its delightful charms as viewed in the extensive area of fertile fields, gardens and orchards. The wooded glens of the near-by foothills, and the rippling mountain brooks, or the more pretentious streams frequented by canoe, yacht, and launch parties are fruitful sources of recreation; while the magnificent distant views to the east, where the fir-clad Cascade Mountains, with their wealth of trees and their perennially snow-capped sentinels, Hood, Jefferson, and the Three Sisters, present a constant panorama of picturesque mountain scenery. With such an environment, the city is truly an ideal location for a college and a home.

GROUNDS AND BUILDINGS.

The College Grounds comprise two hundred and thirty-five acres and occupy a slightly elevated and gently undulating site wholly within the western limits of the City of Corvallis. That part of the grounds, over forty acres in extent, lying immediately about the several buildings and usually designated as the lawns and campus, is tastefully planted with both native and exotic ornamental trees, shrubs, and herbs. The one hundred and eighty acres used for the farm, garden and orchard operations is so platted and planted as to meet the demands of the various lines of work and still conform to a general scheme of landscape embellishment. Broad drives and walks traverse the grounds in all directions, thus rendering every objective point easily accessible. The numerous magnificent specimen trees, groups of shrubbery and massed borders are a source of enjoyment as well as instruction to all those who frequent the grounds. The scheme of planting has been such as to give the grounds an air of peaceful activity, orderly effort, earnest purpose, and quiet refinement. Daily association with such scenes, for a period of years during the time when men and women are forming the habits of thought and action that will be theirs through life, is certain to have a deep-seated and subtle influence for good in moulding the character of future citizens.

The following brief descriptions will convey a general idea as to the principal buildings and the purposes for which they are used:

The Administration Building is a three-story brick structure 90x120 feet, containing thirteen recitation rooms, the library, and the offices of the President, the Registrar, and the Secretary. Centrally located and on a slight eminence, it commands an unsurpassed view of the campus, the City of Corvallis, the Willamette River, and the picturesque Cascades.

Science Hall, situated southeast of the Administration Building, and constructed of gray granite and sandstone, covers a ground

space of 85x125 feet, has three stories and basement, and contai
twenty-nine rooms. It is one of the most substantial buildings
the grounds, and within it, at present, are the Dairy, Bacteriolog
cal, Forestry, and Chemical departments, with their various la
oratories, recitation rooms and lecture halls, together with t
general museums.

The Agricultural Hall stands southwest of the Administrati
Building and when completed will be the largest structure on t
campus. It is an imposing edifice of brick and stone and wi
consist of the central or Administrative building, the north
Agronomy wing, and the south of Horticultural wing. All b
the Horticultural wing will be completed and furnished ready f
use at the opening of the school year.

The central or Administrative building is 66x140 feet, four stori
and basement; and contains a total of forty-two conveniently a
ranged and well-lighted class rooms, laboratories and office
Upon the first floor will be the offices of the Director of t
Experiment Station, the Dean of the School of Agriculture, t
mailing rooms, Agricultural library and, until the Horticultur
wing is completed, the offices, research laboratories and fo
class rooms of the department of Horticulture. The second flo
will be occupied by the departments of Horticulture, Industri
Pedagogy, and Animal Husbandry; the third floor, by the depar
ments of Zoology and Entomology, and Poultry Husbandry; an
the fourth flour, by the departments of Botany and Plant Pat
ology, and Art.

The north or Agronomy wing is 72x130 feet, and three stori
high. It faces north and east, commanding splendid views of t
valley and the College grounds. It is thoroughly modern in a
its equipments, and while intended solely for the work in Agro
omy, at present it accommodates temporarily, three department
with parts of others. The first floor, occupied by the depar
ment of Agronomy, contains eight rooms, and is especially a
ranged for such work as Agrostology, soil physics, and kindre
subjects. The second floor contains nine large rooms, partic
ularly arranged for the work in Domestic Arts, as dressmakin
sewing, millinery, cutting, fitting, and modelling. The thir

floor, with eight rooms, is fitted for the work of the course in Commerce, consisting of accounting, shorthand, typewriting, banking, merchandising and other phases of commerce.

The interior finish throughout is natural grain Douglas fir, burlap wainscoting, and tinted walls. Every room is provided with hot and cold water, electric lights, steam heat and specially designed furniture. The laboratories and class rooms are well equipped with desks, lecture chairs, tables and other apparatus; and all appliances are of the most recent design for the work in hand.

The Horticultural Building is a two-story frame structure, 30x36 feet, with accompanying glass houses having separate floor space of two thousand three hundred square feet. It is north of the Administration Building, and contains the offices and principal laboratories of the department of Horticulture.

Greenhouses. A new range of greenhouses, modern in every respect, has recently been constructed with a view to aiding the student in his studies in commercial greenhouse work. The range is made up of five even-span houses, three ninety feet long by twenty feet wide, and two thirty-three feet long by twenty feet wide, making the total area under glass 6,720 square feet. A modern hot water heating apparatus is being installed with valves and pipes so arranged that different temperatures can be maintained in every separate thirty feet of house in the three long houses. Each of the large houses has been divided into sections thirty feet long so that the entire space in each may be given up to a single crop. Of the two smaller houses, one will be given up to research work and one to the propagation of plants in general. The central building is large and conveniently arranged for all the various kinds of work that is to be met with in greenhouse establishments. Such crops as Carnations, Chrysanthemums, Violets, Palms, Ferns, general pot plants, and forced vegetables like tomatoes, lettuce, and cucumbers will be grown in these houses.

Mechanical Hall, about one hundred and fifty yards northeast of the Administration Building, is two stories high, 90x120 feet, and constructed of Oregon gray granite and sandstone. It is a fine, substantial building, well arranged and admirably adapted for the purpose for which it is used. Besides recitation and lecture room for the classes in Mechanical, Electrical, and Civil Engineering, i contains the Art Rooms and the Physical Laboratories.

The Mechanic Arts Building is a modern, well-lighted structur of brick with cement foundations, 52x52 feet, two stories high flanked by a one-story wing on the east, 40x220 feet, and a simila wing on the south, 40x200 feet. The central portion contains th office of the Dean, a display room for student work, a tool room for the machine shop, and a finishing room for the wood shop. O the second floor is a general drafting room, 30x50 feet, with commodious blue-print and dark room adjoining. The south win contains the main wood-working shop, 40x97 feet, a stock room 30x40 feet, a carpenter shop, 20x40 feet, and the College printin plant, 40x50 feet. The east wing contains the machine shop, 40x8 feet, the blacksmith shop, 40x100 feet, store room for coal and iron lockers, and toilet rooms.

The Mining Building is a small frame structure immediatel south of the Administration Building and contains the Minin Engineering offices, the Geological and Mineralogical museum and a recitation room which will accommodate about twenty-fiv students.

The Mining Laboratory is situated immediately south of Shepar Hall. It is a one-story brick structure, 40x70 feet, and well lighted This building has been remodeled recently, and now contains th Geological and Mineralogical laboratories, an assay laboratory, furnace room, a weighing room and supply room for the work i Mining Engineering.

The Gymnasium is situated about two hundred yards south of th Administration Building. It is built of stone and wood, 70x12 feet. Its one large room is also used as a lecture hall, an assembl room, or a place for entertainments when large audiences ar expected. It will accommodate fourteen hundred persons. In th basement are the dressing rooms, shower baths and offices. Th main hall, which is twenty feet to the under side of the trusse has an unobstructed floor area of 8,000 square feet. It is encircle by a suspended gallery, six feet wide.

The Armory is situated about two hundred yards south of th

Administration Building. It is the largest of its kind in the United States and is built of concrete and steel, 126x355 feet. The drill hall portion has an unobstructed area of 36,000 square feet. The arms room, offices, and drill hall afford facilities for the accommodation of 1,000 men.

The Pharmacy Building, about two hundred yards west of the Administration Building, is a two-story frame structure, containing two large laboratories, three lecture rooms, a machinery and drying room, a pharmacognosy room, store rooms, special laboratories and office. The whole building is amply lighted and ventilated, and affords adequate and suitable quarters for the department.

The Power Plant, a one-story brick building in the rear of Mechanical Hall, contains the requisite equipment for supplying the various buildings with heat, light and power. The apparatus installed in this building serves the purpose also of demonstration equipment in these special lines.

The New Heating Plant, located south of the Armory, is a one-story reinforced concrete building, with a concrete tunnel and conduits leading to the various buildings on the south side of the campus. It contains one two-hundred-fifty horse-power boiler with the necessary equipment for heating the buildings connected to same.

Waldo Hall, the women's dormitory, occupies a commanding site one hundred and fifty yards southwest of the Armory. It is a large building of striking proportions, with a cement foundation and basement wall, and a cream-colored, pressed-brick superstructure, three stories high. The dimensions are 96x240 feet; and it contains one hundred and fifteen rooms for students, besides a kitchen, dining room, parlors and Domestic Science laboratories. It is modern in all its appointments and finished throughout in natural grain Douglas fir, stained to conform to the color scheme.

Cauthorn Hall, the men's dormitory, is a well-proportioned frame building, situated on a sightly spot in the extreme western part of the campus. It is 160x50 feet, has three stories and basement, and contains sixty-two rooms, besides a large kitchen, dining room and reception rooms. Its furnishings and appointments are adequate and in harmony with its use. Each floor is supplied with hot and cold water, baths, electric light, and steam heat.

Shepard Hall. The new Y. M. and Y. W. C. A. building was completed in time for the opening of the school year of 1908. The total cost was something over $22,000. The original plans have been somewhat modified, giving, in many respects, a better building than planned at first. This building contains in the basement a swimming pool, shower baths, lockers, banquet rooms, kitchen wood room, and accessories. The first floor contains a large lobby which is used for a reading room, game room for social events, and general assembly. It also contains an office for the General Secretary, a public office, a cabinet and check room combined, a room for the Y. W. C. A., and one to be used jointly by the Athletic Association and the staffs of the different College papers. The second floor contains six rooms for the use of the literary societies. The third floor is devoted for the present to dormitory purposes. The building is known as Shepard Hall, and is a fitting tribute to the memory of Clay Shepard, who gave his life to the cause of cleaner, higher and truer citizenship as exemplified in student life.

Farm Buildings. The College farm is now well equipped with farm buildings, and modern facilities for conducting practical and scientific work in animal husbandry.

The New Barn recently constructed is commodious, modern, and attractive in design. It is a frame building, with cement foundation and brick pilasters. The main part is 50x100 feet, two stories high, with two wings extending to the south, each 46x80 feet, one story in height. There is also a milk-room, an engine-room, and a fuel-room. The building is utilized as a general barn, and will accommodate nine horses and seventy cattle, with sufficient space for the storage of feed. On the first floor of the main portion are located the horse stalls, bins for storing the various grains and mill feeds, a seed-room and space for vehicles. The concrete basement is of sufficient dimensions to permit the storing of about one hundred tons of roots. The second floor has a storage capacity for one hundred tons of loose hay. A prominent feature of the barn is the cow stable. This is strictly modern, well lighted and well ventilated, with concrete floor, thirty individual, tubular-iron adjustable stalls, and two commodious box stalls. The aisles are wide, and thus not only furnish an abundance of air space for the animals, but they also afford visitors an excellent opportunity to view the stock. The milk and engine rooms are conveniently situated but sufficiently isolated for proper sanitation. This building is lighted by electricity, well supplied with water, thoroughly sewered and furnished with an elaborate system of bell traps.

The old barns were moved and remodeled so as to harmonize with the new structure. They contain rooms for housing machinery, sheds for fattening cattle, and a commodious piggery.

The Poultry Houses. On a ten-acre tract of land, lying southeast of Cauthorn Hall, and west of Waldo Hall, there have been erected several buildings specially planned for the needs of the department of Poultry Husbandry. These buildings comprise an incubator house, with a capacity of twenty-four incubators and complementary apparatus, and thirty colony houses for laying stock and growing chicks. The colony houses are movable and constructed upon a plan that could be adopted by any farmer. The colony brooding coops are also portable, and are used for investigations in both natural and artificial brooding.

EQUIPMENT.

It is impossible, in the brief space that is devoted to this topic, to give more than a bird's-eye view of the equipment of the institution. However, the following data have been so arranged as to give the prospective student a very good general idea of the comprehensive equipment that the institution possesses for carrying forward its designated work.

Agronomy. The new Agronomy Building provides spacious and well lighted offices, class rooms, laboratories, store rooms, and other facilities for this work. The large soil laboratory is newly equipped with the most modern apparatus for an exhaustive study of the physical properties of soil and of problems of soil fertility. Abundant desk and locker room, supplied with running water, gas, compressed air, and electricity, is furnished for sections of fifty students. Compound microscopes, compacting machines, aspirators, percolators, capillary tubes, mulch cylinders, electric centrifuges, shakers, and sifters, electrically heated air baths, thermometers, soil sieves, scales, analytic balances, chemical apparatus, pots and wire baskets, and greenhouse room, form part of the equipment for the work in Soil Physics and Soil Fertility. Soil surveying and mapping outfits, soil survey charts of the United States, and specimens of the chief soil types of Oregon and of the United States are being assembled.

For the work in Crop Production, another large laboratory is provided with special grain-judging compartment desks, sufficient to accommodate sections of thirty students. Part of the apparatus used for the several courses in this subject are grain sampling and mixing machines, complete sets of compound microscopes, dissecting microscopes, and large, mounted field lenses, general and special germinating chambers, various types of germinators, grain tester, grain receptacles of all kinds, and complete sets of seed and plant specimens. Each student is provided with samples of both the seed and the plant of all of the important field crops and weeds of Oregon and of the United States.

Farm Mechanics is provided for in a separate building on the farm, fitted with shafting and power, and fully equipped with all classes and types of tillage implements, manure spreaders, seeding, harvesting, and power machinery, farm engines of all kinds, together with apparatus for testing these machines. Drain tiles, surveying instruments, tile and ditching tools are furnished for drainage and irrigation work.

The Agronomy class rooms have demonstration tables, lantern facilities, illustrative charts of various kinds and a new reference library.

Animal Husbandry. The barns and accessory buildings on the farm, used jointly with the department of Agronomy, meet the requirements for comprehensive work in Animal Husbandry. The stock available for illustration and demonstration purposes, includes typical specimens of Jersey, Holstein, Guernsey, Ayrshire, and both beef and milk types of Shorthorn cattle; draft horses; Cotswold and Shropshire sheep; and Yorkshire and Berkshire swine. In addition to the College stock, students are afforded an opportunity to examine, score, test, and otherwise study the splendid specimens of the various other breeds kept by private breeders and stockmen on neighboring farms. The department possesses extensive sets of lantern slides, maps, charts and the necessary minor apparatus for conducting the various lines of lecture, laboratory, field, and research work necessary to the broad courses of study in the several phases of Animal Industry.

Dairy Husbandry. This department occupies about one-half of the first floor of the Agricultural Hall. At the left of the main entrance is the office and recitation room, and to the right are located the dairy rooms proper. The main work room, located in the northwest corner, is 24x44 feet, with cement floor sloping toward the center. This room is equipped with seven of the latest styles of cream separators, suitable for farm use. These machines are mostly loaned to the department, and are replaced whenever in the opinion of the dealers there have been important changes in the construction of later models. There are also combined churns and workers, box churns, table workers, receiving and ripening vats, Pasteurizer and cooler, and the necessary apparatus for the manufacture of full cream Cheddar cheese.

Adjoining the main work room are lockers for students' use, a well-lighted boiler room equipped with vertical boiler and engine, and a wood and store room. In the northeast corner of the building is the testing laboratory, equipped with all the modern devices for testing milk and its products, such as hand and turbine Babcock testers, curd test, moisture-determination apparatus, cream scales, and automatic acid measures. Two commodious cheese curing rooms, 10x16 feet and 12x16 feet, respectively, complete the quarters of the Dairy Department.

Horticulture. Laboratories and class rooms for the department of Horticulture are located principally in the new Agricultural Building. They consist of a Pomology laboratory specially equipped with tables and accessories for classifying, describing and judging fruits and vegetables; special drafting laboratory, containing tables, cabinets, lockers, etc., for students in Landscape Gardening, Greenhouse Construction, and Commercial and Practical Pomology; and a packing laboratory containing the newest and most approved appliances for skilful handling of fruits, including box machines, grading and packing tables, and fruit presses. The Plant Propagation laboratory is well equipped with tables, benches, vices, etc., for budding and grafting. The Floriculture laboratory contains apparatus for mixing of soils and fertilizers, seeding, transplanting, bedding, and preparing flowers and vegetables for the market. Lecture rooms are provided with facilities for illustrated lectures by means of lanterns, photographs and charts. The department is fortunate in possessing a good laboratory and general assortment of tools for conducting field exercises in Pomology, Landscape Gardening, and Truck Gardening.

Poultry Husbandry. The equipment of this department consists of a number of poultry houses of different types; about 300 fowls of several breeds and varieties, sixteen incubators of six different makes, bone and clover cutters, trap nests, cramming machines, and various other appliances that are necessary for practical poultry keeping. There are also sets of charts, lantern slides and photographs, illustrating breeds of fowls, poultry farms and houses.

Forestry. The department of Forestry occupies the third floor of Science Hall (old Agricultural Hall). It has a complete herbarium of the forest trees of the Pacific Coast, as well as a cone collection representing the important commercial conifers of the United States. It has apparatus for applying preservatives to timbers by the open tank method, timber testing machinery, incubators for testing tree seeds, wood specimens, stereopticon and slides, compound and low power microscopes, hypsometers, increment borers, scale sticks, calipers, surveyors' compasses and chains, pack outfits, axes, saws, drafting tables, and other equipment necessary for efficient laboratory and field work. A nursery has been established on the College farm, in which native and exotic timber-tree seedlings are being grown. The City Water Company of Corvallis has placed a timbered tract of eighty acres at the disposal of the College for demonstration purposes.

Domestic Science. This department is located on the basement floor of Waldo Hall, occupying the entire floor, except that part used for the hall dining room and kitchen. There are two large school kitchens, a lecture room, and a room for instruction in home nursing, with proper furnishings to give practice in making and changing beds for the sick and the general care of the sick room. The school kitchens are equipped with work tables, cupboards, ranges, gas stoves and all necessary utensils and modern conveniences for teaching cookery. The dining room is furnished with an extension table, chairs, cupboards, china, silver and table linen. The department is also provided with a large laundry, equipped with stationary tubs, ironing boards, skirt boards and other necessary furnishings.

Domestic Art. A large portion of the second floor of the Agronomy Building is allotted to the work in Domestic Art, containing rooms for hand and machine-sewing, cutting and fitting, millinery, household decoration, etc. The machine rooms are furnished with the latest improved machines; and the sewing rooms are provided with tables, electric irons, wardrobes and cupboards for holding unfinished work, large display cabinets for finished work, and cabinets for the collection of samples showing the processes of manufacture of cotton, wool, silk and linen.

Civil Engineering. In addition to joint use with the Mechanical department of the testing laboratories and blue print rooms described elsewhere, this department has for its exclusive use a suite of four well-lighted rooms, suitably arranged on the second floor of Mechanical Hall. This suite includes an office, a recitation and a lecture room, an instrument room and a drafting and designing room.

The drafting and designing room, 28x47 feet, is well lighted and fully equipped with thoroughly modern and convenient drawing tables, supplied with individual lockers for instruments and other apparatus. The instrument room is conveniently arranged, having an individual glass-front case for each instrument and its accompanying equipment, which includes marking pins, tape, range-poles, notebook, etc. The instrumental equipment includes the following: twelve transits, five of which are provided with solar attachment ; eight levels, four plane-tables, one compass and two current meters, all high-class instruments of various standard makes and styles; a sufficient supply of level and stadia rods, range-poles, tapes, chains, plain and prismatic compasses, aneroid barometers, clinometers, planimeters, plumb-bobs, hand levels, etc., together with a well-selected assortment of specifications and blue print plans of engineering structures for illustrative purposes.

Electrical Engineering. The laboratory of this department occupies a large part of the west half of the first floor of Mechanical Hall, and is divided into several rooms; one for testing, one for instruments, and another for supplies. Besides the equipment therein, including generators, motors, and other apparatus, the machinery in the College Power Plant, and sub-station, with its 10,000-volt step-down transformers, is available for study and testing purposes. Three-phase electrical energy is supplied by the long distance transmission line or by the local generating units, as desired.

In the laboratory is a 6½x15 foot switchboard, consisting of three asbestos wood panels on which are mounted a number of voltmeters and ammeters for direct and alternating current; a power factor meter; a frequency meter, and synchroscope; a set of synchronizing lamps; circuit breakers; switches; and a large number of plug terminals, the leads of which extend to the eight machine platforms; two slate panels with instruments and switches for direct current machines; and an arc light regulating panel. Immediately adjacent thereto is a controller, auto-transformer and rheostat rack, six feet high by sixteen feet in length.

The machine platforms just mentioned are four feet wide by fourteen feet long, and have upon them the following equipment: one five, one seven and one-half, and three ten-horse power, three-phase, induction motors; two five, two seven and one-half, two ten, and two twelve and one-half kilowatt, 125-volt direct current generators; one ten-kilowatt double current generator, and one two-kilowatt rotary converter; two two and one-half kilowatt induction motor generator sets; one two and one-half kilowatt synchronous motor generator set; one seven and one-half kilowatt revolving field alternator with three additional rotors, and one seven and one-half kilowatt revolving field alternator, from both of which current of single, two, three, four, six and twelve phases may be taken; one fifteen-arc light constant current dynamo; one five-arc light regulating transformer; one 110,000-volt high tension testing transformer; and several transformers and compensators.

The instruments available are ample in number and range, and consist of direct and alternating current voltmeters and ammeters; milli-voltmeters and shunts; wattmeters and watt-hour meters; and the following precision instruments for standardizing: one ammeter and one voltmeter operating on the Kelvin balance principle; one poly-phase and two single-phase indicating wattmeters, and one 100-ampere manganin shunt.

Mechanical Engineering. The department laboratories contain the apparatus necessary for the work in calibration, strength of materials, testing of lubricants, power engineering, and hydraulics. Among the more important pieces the following may be mentioned:

For preliminary work and calibration: Thacher calculating instrument, several high-grade planimeters, gage tester, device for calibrating indicator springs, torsion transmission dynamometer, etc.

For work on materials: A 50,000-pound Riehle universal testing machine fitted with autographic recording device, a high-grade Riehle recording extensometer, Olsen impact machine and rattler for testing road metals, standard rattler for paving brick, a 1,000-pound Fairbanks cement testing machine with other apparatus for complete standard tests on cement; in addition to the above there are the usual testing machine accessories and fittings needed for standard work.

Various tests may be made on lubricants, bearing metals, and different types of bearings by means of a Golden bearing and oil dynamometer. There are also provided the usual minor pieces, such as flash point apparatus, viscosimeter, etc.

For the work in steam and power engineering there is available the equipment of the College Power Plant, which consists of a bank of three fire-tube boilers supplying steam to the heating system and to a forty-horse-power Ideal automatic high speed engine. The engine room has been converted into a power laboratory and contains, in addition to the engine mentioned above, a 7x8 throttling engine, a three-horse-power gasoline engine, an eight-inch Reeco-Ericson hot air pumping engine, a large exhaust fan, a blower, and a part of the hydraulic equipment of the department. All the engines are fitted with brakes of various kinds, and other auxiliaries for testing. The power plant also affords facilities for testing feed pumps, injectors, feed water heaters, etc. Of smaller apparatus there might be mentioned five indicators, one a Trill instrument with continuous drum; reducing motion, and high pressure piston, two steam calorimeters, fuel calorimeter, flue gas sampling and analysis apparatus, two pyrometers, draft gages, recording and indicating pressure gages, etc.

Part of the hydraulic equipment is located in the power laboratory; this apparatus consists of several steam pumps, a centrifugal pump, 12-inch Doble laboratory water motor, hydraulic ram, two meters, and other small apparatus. The College water supply is now taken from the city mains and some hydraulic tests are carried out at the pumping plant, which has become part of the laboratory equipment. Measurements of neighboring streams are also made both by the weir method and by current meter.

The Wood Shop, supplied with the best machines and tools the market affords, contains twenty-four double benches of modern design, accommodating forty-eight students. Each bench is provided with patent rapid action vises for holding the work, and is furnished with two sets of hand tools, consisting of rip saws, cut-off saws and back saws, planes, chisels, paring gouges, marking gauges, try squares, hammers, dividers, and oil stones. The machine equipment of this shop consists of fifteen wood-turning lathes, each furnished with a set of tools; one iron saw-table with rip and cut-off saws, one band saw, one jig saw, 24-inch surface planer, 16-inch glue joiner, four-sided 4-inch moulder, power mortiser and borer combined, post boring machine, swinging arm sander, two grindstones, one concave for gouges and one straight for plane irons and chisels; there are also two glue tables with clamps of various sizes and one steam and gas glue heater of three gallons capacity; the power is furnished by two three-phase induction motors of fifteen horsepower each.

The Forge Shop contains forty-two down-draft forges of the most improved pattern. Blast is furnished by a steel pressure blower driven by a 10-horsepower induction motor, and the smoke and gases are removed by an 80-inch exhaust fan, driven by a 20-horsepower motor. Each forge is provided with anvil, hammers, hardies, tongs and other small tools. There are also swedge blocks and vises at convenient points in the room for general use.

The Machine Shop contains one 24x24-inch iron planer, one 15-inch shaper, one 12-inch shaper, one universal milling machine, one universal tool grinder, one wet tool grinder, one radial drill, one 20-inch drill press, one sensitive drill press, one 20-inch engine lathe, one 16-inch engine lathe, one 16-inch universal turret lathe, one 14-inch modern geared lathe, five 14-inch engine lathes, two 10-inch speed lathes, one shop saw, one automatic knife grinder, and twelve bench vises. A 20-horsepower induction motor furnishes the power. A tool room adjacent contains the small tools, such as twist drills, taps, dies, reamers, calipers, gauges and scales. These tools are given out to students on the check plan.

Mining Engineering. This department occupies two buildings; the small structure south of the Administration Building contains the Mining Engineering office and recitation rooms, while the other, just west of the Administration Building, contains the laboratories in Geology, Mineralogy, Metallurgy, and Assaying. The department possesses the following geological and mineralogical collections:

A Mineral Type Collection, consisting of about twelve hundred and fifty well characterized and labeled specimens used by the students for purposes of study and comparison; a Working Collection of minerals, consisting of about four thousand unlabeled specimens similar to those in the Type Collection, used by the student for study and determination; an Exhibit Collection of minerals, consisting of large and attractive specimens of minerals and rocks; a Crystal Collection, containing about eight hundred natural crystal forms; a Crystal Model Collection, consisting of forty-eight large glass crystal models and about five hundred wooden models used in the study of Crystallography; a Blowpipe Collection, containing minerals and materials used in blowpiping; the United States Geological Survey Educational Series of Rocks; Foote Rock Collection; a Working Collection of Rocks, containing unlabeled specimens for the use of the student in the work of petrology.

The assaying and metallurgical laboratory is equipped with two double muffle coal furnaces, two gasoline muffle furnaces, two gasoline crucible furnaces, one combination gasoline furnace, one Parr's pyrometer, button balances, one of the new balances having a multiple rider attachment, pulp balances, cupel machines, crushers, grinders, sampling apparatus and all necessary appliances for a modern assay laboratory.

For the work in Mine Surveying the department is equipped with two highly improved mining transits with auxiliary side or top telescopes, two Brunton pocket transits together with necessary minor equipment incidental to mine surveying work.

The department has recently received, through the generosity of the Hardsocg Wonder Drill Company, Ottumwa, Iowa, one Hardsocg Hammer Drill (Model 19c), with full complement of steel. The Ingersoll Rand Company of New York has also loaned to the department one new Davis Calyx Core Drill, a large machine drill used in prospecting. This machine is a very valuable addition to the mining equipment. The department also has a complete outfit of hand drilling tools.

Commerce. This department is completely equipped for thorough and efficient work in modern business courses. Each room is specially designed and furnished for the work to be conducted in it. The furniture of the department consists of individual desks and counters, a complete set of modern banking fixtures, a wholesale house, a retail house, a commission house, freight, real estate and insurance offices. Permanent blank books, letter files, rubber stamps, copying presses, college currency, blanks and similar material are provided by the College. The room for typewriting contains twenty standard machines, each provided with approved conveniences for the operator. The room for stenography is furnished with tables designed for convenience in practice work; also equipment for illustrating various systems of filing. The department of Political Economy is developing a commercial museum for use in the various courses in social science.

Pharmacy. In addition to the usual outfit of desk apparatus for the individual student, the department is supplied with a number of special pieces of apparatus for general use, as pharmaceutical stills, from the simple retort to the complicated vacuum still; drug mills, for hand and power; suppository machines, for fusion and for compression; tablet machines, mould and compression; pill machines; tincture presses; capsule filling machine; percolators and much minor apparatus.

Zoology. The laboratories of this department occupy the following rooms on the third floor of the new Agricultural Hall: two offices, research laboratory for entomology, physiological laboratory, general laboratory for zoology, two lecture rooms, vault and photographic dark room. The general laboratory is equipped with desks with individual drawers to accommodate 280 student; each desk is provided with compound microscopes, dissecting microscopes, and various minor pieces of apparatus. The physiological laboratory is similarly equipped for 225 students and in addition is provided with an articulated skeleton, a dissectible human skull, a complete Azoux model of the human body, greatly enlarged Azoux models of the brain, eye, ear, and other organs, a set of the celebrated Leukart zoological charts, and a good supply of specimens and dissections for illustrating the work in physiology. The entomological laboratory contains the entomological collections, a portion of the department library, and although used as a research laboratory for the head of the department and assistants, it is fully equipped for ten or twelve advanced students. It is provided with high grade compound and dissecting microscopes, a Minot rotating microtome, a Minot automatic precision microtome, water bath, 5x7 view camera, 4x5 micrographic camera, laboratory balances, eye-piece, and stage micrometers, and an abundant supply of minor instruments.

The museum, which occupies most of the fourth floor of Science Hall, contains, in addition to a beautiful collection of native birds, a small collection of mounted mammals, a collection of bird skins from Alaska, a large collection of eggs of native birds, a small collection of fishes and reptiles, a considerable number of marine invertebrates, including a small but beautiful collection of Philippine shells, an extensive collection of native insects, and numerous specimens of a miscellaneous nature.

Chemistry. The department of Chemistry occupies nearly all of the south wing of Science Hall, and one room in the basement of the central portion. In this latter room, aside from desk space for seventy-two students, is a 150-light Terrill gas machine that supplies gas for the different laboratories throughout the building. The main lecture room is situated on the third floor, and has a seating capacity of one hundred and fifty. It is provided with lecture tables that are supplied with gas, electricity and water. Adjoining the lecture room is a small preparation room, in which is kept all special apparatus used for lecture demonstration, as well as supplies for the agricultural laboratory. This room is supplied with all the necessary apparatus for the proper elucidation of the principles of this branch of chemistry.

The organic laboratory is fitted for twenty-four students. Each student has a drawer and locker, a sink, a Richards' filter pump, a full set of reagent-bottles, individual gas and water outlets. Next to this laboratory is a room set apart for fuel and gas analysis and for photographic chemistry. The special apparatus of this room consists of Orsats' bulbs, and pipettes, Winkler's burettes, the latest forms of Hempel's bulbs, Victor Myers', Dumas', and Hoffman's apparatus for molecular weight determination, Beckman's cryoscope, Landsberger's ebulliscope, Parr's latest form of calorimeter, analytical and torsion balances, and the usual small pieces that accompany the above.

The largest room in the building is the main general laboratory, which will accommodate three hundred and ninety students, in four sections. Adjacent to this laboratory is a store room amply stocked with all necessary supplies and apparatus. The weighing room contains eight analytical balances of the best type for student use, and is well lighted and ventilated. The quantitative laboratory, which will accommodate seventy-two students in three sections, is in the basement, and adjoins the store room. It is fully supplied with various kinds of calibrated ware, as flasks, burettes, cylinders, urinometers, lactometers, hydrometers, and barometers; centrifuges for rapid separation of precipitates, blast lamps for fusions, muffles for incinerations, tables for glass working, and much minor apparatus.

For work in Agricultural Chemistry an entire room is set aside. This room is fitted with gas, water and electricity, condensers for distilled water, batteries, extraction apparatus for fats, nitrometers, Kjeldahl apparatus, hot water filtering apparatus, grinders for fodders, steam and air baths, calorimeter, polariscope, Westphal and analytical balances, coarse balances for rough work, hot-plates, and minor apparatus. This is one of the strongest divisions in the department and is lacking in nothing that makes a fully equipped agricultural chemical laboratory.

Bacteriology. The equipment of the bacteriological laboratory consists of modern apparatus for teaching bacteriology in all its phases. There are compound microscopes of the highest grades, incubators, steam sterilizers, an autoclave, hot-air sterilizers, dissecting microscopes, microtomes, counting apparatus, hydrogen gas apparatus for growing anaerobes, water baths, centrifuges, paraffin baths, balances, desiccators, blood counting apparatus, fermentation tubes, test tubes, flasks and other glassware.

Botany and Plant Pathology. This department is located on the fourth floor of the new Agricultural Hall and occupies a suite of six rooms including office, herbarium room, culture room, general student laboratory, advanced student laboratory and Experiment Station laboratory for research in Plant Pathology. The rooms of the department are provided with new furniture. The general student laboratory is provided with ten large student tables, each of which will accommodate four students. Individual drawers are provided in each desk to accommodate seven sections or a total of two hundred eighty students. Compound and dissecting microscopes are provided for each student. The advanced laboratory is provided with six similar tables, and in addition provision is made for experimentation in Plant Physiology.

The research laboratory in Plant Pathology will also serve as an instructor's preparation room for certain of the material used in advanced classes in Histology and Morphology, etc. This laboratory is equipped with a modern autoclave, Arnold sterilizers, electrically heated incubator and paraffin ovens, various types of microtomes and the other usual equipment of a modern laboratory of Plant Pathology.

The Phanerogamic herbarium of several thousand mounted and many thousand unmounted plants is particularly rich in Oregon forms, while containing quite extensive collections of the New Mexico, California, Michigan, Washington, and Alaska floras. The herbarium is being rapidly enlarged by exchange, particular attention is being given to the accumulation of economic material including the forest and shade trees of North America, agricultural plants of the world, pharmaceutical plants, weeds and grasses of economic importance. Large and miscellaneous collections of the various groups of cryptogamic plants are being assembled. Particular attention is being given to the collection of parasitic fungi for use in the work in Plant Pathology. A private collection of about five thousand specimens of fungi particularly rich in parasitic forms has been temporarily loaned by H. S. Jackson for the use of students and instructors.

A large amount of class study material is preserved in alcohol for the use of classes. A well selected collection of microscopic slides, photographs, and lantern slides is provided and is being rapidly enlarged. The equipment for Plant Physiological work includes all the essential apparatus for a modern laboratory course.

Physics. The physical laboratory has a good working equipment for the study of general physics, the apparatus being such as to allow a qualitative or quantitative verification of all of the important laws by the student. In addition to the equipment of the general laboratory, there are many pieces of apparatus intended mainly for class room demonstration. Instruments are also available for the usual work in electric measurements and the standardizing of electrical instruments.

Drawing. The department of Drawing occupies three commodious, well-lighted class studios on the third floor of the new Agricultural Hall. These rooms have north light, are perfectly heated and ventilated, and are well furnished with studio furniture; such as easels, drawing tables, portfolio racks and similar accessories. The class studios are equipped with cast forms for models; the collection is quite extensive and consists of casts of geometric figures and a carefully selected assortment of block-casts of hands, feet and heads; casts of architectural pieces, fruit, foliage, flowers, heads, masks, arms, hands and feet; and a number of full figure pieces in full and bas-relief. There is also a good collection of still life objects and draperies for light and shade, pen, ink, and color study.

The Library occupies two-thirds of the second floor of the Administration Building. The reading and general reference room is large, well lighted, and extends entirely across the building, and is supplied with about two hundred leading magazines and newspapers. Through the courtesy of the editors, a large number of farm, orchard, stock and home journals and county newspapers of Oregon are received regularly at the reading room. The book stacks, occupying an adjacent room, contain about five thousand volumes of standard works of history, biography, engineering, agriculture, natural science, general literature and reference, and about 1,500 reports and other publications from the Agricultural Colleges and Experiment Stations of all the States, and ten thousand bulletins and pamphlets. It is a designated depository of United States Government publications, of which it has about five thousand volumes. Over two thousand of these were received as a gift from the library of the late United States Senator Dolph.

Practical use of the books has led to the establishment of small reference libraries kept in the rooms of the following departments: General Chemistry, Agricultural Chemistry, Animal Husbandry, Agronomy, Horticulture, Botany and Forestry, Bacteriology, Zoology, Pharmacy, Civil, Mechanical, Electrical and Mining Engineering. Each department library is in charge of the head of that department, to whom application must be made for the use of the books.

All books are classified and catalogued according to the Dewey decimal system. Books may be drawn for home use by all officers and students of the College. Books may be kept by the students for two weeks with the privilege of a renewal and by officers for any reasonable time. All students have free access to the shelves of the reference library in the reading room, but apply at the delivery desk for other works which they may desire.

The reference library consists of encyclopaedias, dictionaries and standard reference books in the different departments of study, together with books designated by professors for collateral reading in the various courses of instruction. A small collection of books for cultural reading is also kept in the reading room. In the same room and accessible to all readers is the card catalogue of the general library, including the books of the department libraries. The catalogue is one of authors and subjects under one alphabet on the dictionary plan.

The Gymnasium is equipped with lockers and dressing rooms with accommodations for a thousand men. In the shower-bath room, hot and cold water is available throughout the year. The floor of the gymnasium is surmounted by a balcony running-track, and a splendid playing space is provided for basket-ball and other indoor games.

The equipment includes horizontal bars, vaulting horses and bucks, parallel bars, swinging rings, dumb bells, Indian clubs, wands and chest weights. For those interested in combative sports, a wrestling mat is provided. The athletic field adjoining the gymnasium has within its bounds a quarter mile running-track, football gridiron and baseball diamond. Bleachers and grandstand accommodate the spectators.

Directly opposite the Gymnasium is located the new Armory with a dirt floor over one hundred yards long and fifty yards wide. The dirt running-track in the Armory is an eighth of a mile long. These facilities afford opportunities for all of the athletic teams to train every day in the year. There are galleries for the spectators and at indoor winter meets, 2,000 spectators can be easily accommodated. The regular gymnasium classes are taken to this indoor athletic field for part of their work in physical education.

THE EXPERIMENT STATION.

The Station bears an important relation to the College, as the scientific investigations conducted at the Station strongly support the instruction given in the class room. Aside from the original investigations of economic significance to agriculture, the work of the Station affords daily object lessons in modern farm practices.

About one hundred and fifty acres of land are devoted to the use of Station workers. This land is utilized by the various departments represented in the Station organization, including the departments of Chemistry, Agronomy, Horticulture, Animal Husbandry, Dairy Husbandry, Poultry Husbandry, and Entomology. Each department is actively engaged in the scientific investigation of problems presented by the different branches of agriculture.

As an illustration of the comprehensive character of this work, the following investigations, taken at random from the list of those now being conducted by the Station workers, may be cited. The value of such work, as an object lesson to the students in the various fields of agriculture, can hardly be over-estimated. There are experiments with long and short rotation systems for the improvement of soil fertility; tests to ascertain the adaptability and value of alfalfa for soiling and pasture; tests to determine the adaptability of kale as a winter succulent feed for dairy cows and other stock; experiments in breeding wheat for increase in both quantity and quality of yield, and improvement in adaptation to soil and climatic conditions of the Willamette Valley; experiments in testing the value of irrigation in Western Oregon for general farm crops; tests for comparing the merits of Loganberries and Phenomenal berries; variety tests of strawberries; experiments in cross pollination of apples; co-operative work in the investigation of gummosis of the cherry; a study of the effects of the lime-sulphur spray under varying conditions; investigations of apple tree anthracnose, peach spot, potato blight, and celery leaf blight; a study of machine milking as compared with hand milking; investigations as to the relation of speed, the temperature, and the fat content of milk to the cream produced by hand separators; co-operative investigations with the department of bacteriology relative to the best manner of using ''cultures'' in butter and cheese-making; experiments in incubation to discover, if possible, the cause or causes of the great losses in artificial incubation; comparisons between hen-hatching and incubator-hatching; the humidity conditions of natural and artificial methods of incubation; carbonic acid gas as a factor in incubation; feeding experiments to determine the value of various forage crops and cereals for the growing and fattening of hogs; experiments in the feeding of dairy cows; experiments in grazing and fattening swine; investigations in the economical production of beef and mutton.

COLLEGE SOCIETIES.

One of the most important factors in rounding out the results and benefits of a college course is the society, club, or association work. Because of the diverse interests of college life and the varied tastes of the students, the following organizations are maintained by students and faculty:

The Student Body Assembly. This is an organization of the entire student body, working under a constitution and by-laws approved by the faculty, and having general authority over all student enterprises. In order to secure an effective administration of the business coming within its jurisdiction, there are permanent committees on athletics, publications, oratory and debate, and such special committees as the assembly may by vote determine. Officers are elected yearly, and nominations and elections are conducted in a manner similar to that of the State electorate.

The Literary Societies. These twelve organizations—Sorosis, Pierian, Feronian, Utopian, Clionian, and Adelphae, for women; and Amicitian, Jeffersonian, Philadelphian, Zetagathian, Athenaeum, and Hesperian, for men—have the common purpose of promoting literary work among the students. The weekly literary programs and occasional joint meetings tend to this end. To stimulate interest in debate and oratory, there are held during the year inter-society, inter-collegiate and inter-State contests. Gold medals are presented to the winners in the two latter events, and the successful society in the former receives the ''Gatch Cup.'' This is the silver cup that was presented in 1901 by Dr. Thomas M. Gatch, then President of the College, to the society that had received highest honors in the season's debates. Annually this cup is to go to the successful society in the debates, but is ultimately to become the property of the society winning it three years in succession. Many and determined have been the battles for its possession, but the cup is still without a permanent home.

The Christian Associations. The religious work of the College is well cared for by the Young Men's and Young Women's Christian Associations, these organizations being particularly strong. The construction of Shepard Hall, the new student building, has materially increased the scope and added to the effectiveness of the work. The Associations aim to provide a moral atmosphere and pleasant social advantages for the students. Religious meetings are held in the rooms of these organizations every Sunday afternoon, and Bible Study classes are regularly conducted. On registration days, committees are on hand to assist students in adjusting their work satisfactorily, and securing comfortable quarters in good homes. Those who wish to make their way through college, will find the employment agencies always ready and glad to assist them as far as possible in procuring positions. For further information concerning these or other matters, address the General Secretary, Y. M. C. A., Corvallis.

The Athletic Association. This organization, maintained by the students through the student body assembly, encourages wholesome competition in the various outdoor and indoor sports and pastimes. It has charge of all details pertaining to the conduct of intercollegiate athletics in which the College may be interested. A committee of the faculty has general supervision over the whole subject of athletics, thus insuring a sound and conservative management.

The Oratorical Association. This body has immediate charge of all business pertaining to the competitive work in oratory and debate. Schedules, dates, prizes, conditions of competition and all similar matters are in its care.

The Dramatic Club. This club was organized for the purpose of offering special training in elocution and dramatic art. Membership is open to all students who desire to pursue work in these fields. Platform exhibitions will be given and standard plays presented during the College year.

The Sphinx. This is a senior honor society. Membership is acquired by election based on prominence in student activities and scholastic excellence.

The International Club. This is an organization of foreign and American students. It is a local chapter of the Association of Cosmopolitan Clubs of the World. Its purpose is to provide social and educational advantages for its members and to promote international friendships. At present, nine nations are represented in the local chapter.

The Camera Club. The aim of this organization is the advancement of ''camera craft.'' The regular discussions cover topics pertaining to lenses, cameras, camera outfits, plates, films, printing papers, negatives, lantern-slides, transparencies, and general technique, photographs for scientific purposes, photographic illustration, and demonstrations of material and processes.

Vorwaerts. This is the German club, membership in which is restricted to students in second-year or advanced German. Its object is to familiarize its members with the use of German, especially in conversation. To this end, all conversation in the regular weekly meetings is carried on in this language, and programs consisting of German plays, songs, readings, and the like are features of the club work.

The Agricultural Club. This club was established for the purpose of advancing interest in the various phases of agriculture, and promoting the investigation and discussion of both general and special agricultural subjects. Suitable programs are prepared for each meeting, and whenever practicable, leading authorities on practical agriculture are engaged to address the members.

The Lewelling Club. This is the horticultural club conducted under the auspices of the Horticultural Department. There is no regular organization, except an executive committee, which has power to transact such business as requires action on the part of the club. It is open to all students interested in horticulture.

Delta Theta Sigma. There is established at this College a local chapter of this national honorary agricultural fraternity. The aim of the society is to advance the study of agricultural subjects by giving honorable recognition to students taking the lead in the work. Elections to membership are made by the faculty from the junior and senior classes.

The Forest Club. This is an association of students and instructors, ''formed for the purpose of promoting the forestry interests of the State.'' In order to carry out its purpose, it meets twice each month for the discussion of current forestry literature, magazine articles, news items, legislation, and general progress movements pertaining to forests, forest service, forest products, forest industries, lumbering, and the lumber trade.

The Civil Engineering Club. This is an organization within the department of Civil Engineering. The active membership is drawn from the junior and senior classes, and the privilege of associate membership is extended to the members of the two lower classes. It meets weekly for the discussion of subjects of interest to the civil engineer.

The Electrical Engineers. This is a College branch of the American Institute of Electrical Engineers. The aim of the organization is to discuss the topics contained in the monthly proceedings of the A. I. E. E., and in this way develop an intimate knowledge of the activities of the national organization, thereby coming into closer touch with the practical problems in the engineering world and becoming better fitted for their life work.

The Miners' Association. This body has for its object the discussion of technical engineering subjects; the review of current mining literature; the presentation of original papers by the active members; and occasional lectures on special mining topics by men outside of the College.

Mechanical Engineers. This is a College branch of the American Society of Mechanical Engineers. The purpose of the association is to keep in touch with the practical problems of the engineering world.

The Margaret Snell Club. This is an organization for the purpose of bringing the girls of the Domestic Science and Art course into closer touch with each other and with the problems concerning their work. The meetings are devoted to the discussion of various questions in Domestic Science and Art, and to the presentation of lectures by authorities on these subjects.

The Commercial Club. This is a student organization within the School of Commerce. The purpose of the club is to bring its members into close relation with current methods and events in the commercial world. This is accomplished by discussions of topics pertaining to commerce by members of the club, and by addresses at various times during the year by men prominent in the fields of law and business. Active membership is open to the juniors and seniors of the school, and associate membership may be enjoyed by the underclassmen.

Science Club. This club is an association of faculty members and students who are interested in scientific work. It meets once a month for the purpose of discussing scientific subjects. Membership is open to all students taking work in the sciences.

The Pharmaceutical Association. The main purpose of this organization, which consists of the pharmacy students, is to bring its members into close relation with the current events of the pharmaceutical world. This is brought about by discussions in the meetings of topics pertaining to pharmacy, and by addresses at various times during the year by prominent pharmacists and salesmen of the State.

COLLEGE PUBLICATIONS.

Two classes of publications are issued from the College; one, official, published by the College authorities; the other, unofficial, and published by various student organizations.

The College publications include:

The Catalogue. Published at the close of the College year and containing much general and specific information as to the courses of study, equipment and instruction;

The Summer School. The announcements contain specific information of expenses, courses of instruction, character of the work presented, and the requirements that prospective students must meet;

The Winter School. The announcements carry such information regarding the winter courses as may fully present the advantages of these courses to the public;

The Department Circulars. These contain specific and technical information, relating to the courses of study, departmental instruction, and those features of particular interest that appeal to the specialists along the several lines of industry represented by the various departments of the College;

The Station Bulletins. A series of special reports upon experimental investigations in agronomy, horticulture, dairying, animal husbandry, poultry husbandry, insect pests, plant diseases, and special subjects of interest to the husbandman.

The student publications comprise:

The Barometer. In March, 1896, the literary societies of the College began the publication of a monthly periodical, the ''O. A. C. Barometer.'' The enterprise has met with deserved success, and ''the organ of the student body'' is now issued as a four-page, five-column semi-weekly. It publishes the ''news of the College,'' literary and scientific articles, and is of general public importance as representing the interests, character and accomplishments of the student body of the College.

The Orange. This is the annual publication of the junior class, and made its initial appearance in 1907. It is a high-class publication, bound in flexible leather, and fully illustrated with photo-engravings, pen and ink sketches, line and wash drawings. It is a compendium of college life as seen by the juniors, brimful of wit, humor, sarcasm, sentiment and good will.

The Oregon Countryman. A monthly magazine published by the Agricultural and Domestic Science and Art students under the supervision of the faculties of these courses. Besides dealing with the work of the various departments in a practical manner, it contains articles of scientific value contributed by the Experiment Station workers. Successful men and women of the State contribute articles for each issue. Agricultural education in the secondary schools and nature-study work are strong features.

The Student Engineer. A magazine devoted to engineering and the mechanic arts. Its purposes are to record the engineering progress in the Northwest; to furnish news; to discuss methods relating to the mechanic arts; to publish records of scientific work done by the students in this institution; and to publish any matter of special technical and scientifc interest. Items of interest will be found for civil, mining, mechanical, and electrical engineers, and for others who are engaged in technical pursuits. The journal is under the supervision of the faculty of the School of Engineering and Mechanic Arts, but the work and responsibilities of publication are borne by the staff, elected by the students of the School of Engineering.

STUDENT EXPENSES.

FEES.

Tuition is free. The regular College fees required of all students, with the exception of special students in Music, are as follows:

Entrance fee, payable annually on registration	$5.00
Diploma fee on graduation	5.00
Incidental (Student) fee, payable each semester	2.00
Entrance fee for Winter Short Courses	1.00

Students are charged small fees in the different laboratory courses to cover the cost of material used; and deposits are required to cover cost of breakage in laboratory courses where breakages are likely to occur. These fees are payable at the beginning of each semester. At the end of the semester deduction is made for actual breakage and the balance of the deposit is refunded to the student. The fees and deposits charged each semester in the different courses are as follows:

FEES AND DEPOSITS.

1910-1911.

	Fees.	Deposits.
Agronomy:		
Course C	$ .25	
Courses 3, 6, 10, 13	.50	
Courses 5, 12	1.00	$2.00
Course 9	1.00	
Course 15	1.00	3.00
Bacteriology:		
First semester	No fees	
Second semester	.50	1.00

Botany:		
Courses A, B, 1, 2 (per credit)	.50	
Courses 1, 2, 3, 4, 5, 8, 9, 10, 11	1.00	
Courses 6, 7	1.50	2.00
Business Administration:		
Courses A, B, C, D, E, F, 1, 2, 3, 4, 5, 6, 9	1.00	
Chemistry:		
Courses 5, 7, 8, 12, 13, 14, 15, 17, 18	3.00	2.00
Courses 1, 2, 3	3.00	1.50
Course 4	3.00	1.50
Course 6	3.00	1.50
Courses 10, 11	4.00	1.00
Dairy Husbandry:		
Courses A, 1	1.00	2.00
Courses B, 2, 3, 8, 10	1.00	
Course 11 (Special Winter Course)	3.00	2.00
Domestic Science:		
Courses E, F, 3, 8, 15, 16	.50	
Course 6	1.00	
Courses 19, 20	1.50	
Courses 12, 13	2.00	
Courses A, B, C, D, 1, 2, 7	3.00	
Courses 4, 5, 10, 14	3.50	
Domestic Art:		
Courses A, B, 1, 2, 5, 6, 14, 15, 17	.50	
Courses C, D, 3, 4, 16	.75	
Course 18	1.00	
Courses 7, 8, 9, 10	2.00	
Courses 11, 12	3.00	
Drawing:		
All courses in Freehand Drawing	.50	
Engineering:		
Civil—Courses 1, 3, 5, 7	1.00	
Electrical—All laboratory courses	2.50	5.00
Mechanical—Courses 11, 12	2.50	2.50
Mining—Course 7	10.00	

Forestry:		
Courses 11, 12	1.50	
Summer Camp	5.00	
Geology:		
Courses 3, 4, 6, 8	1.00	
Courses 1, 2	3.00	
Horticulture:		
Course 1	1.00	
Course 11	2.50	
Pharmacy:		
Courses 6, 7, 11	5.00	1.00
Physics:		
Courses A, B, 7, 8	.75	
Courses 3, 4, 5, 6, 9	1.50	
Courses 1, 2	1.25	
Courses 11, 12		2.00
Penmanship:		
Courses A, B, 1, 2	1.00	
Physical Education:		
All courses	1.50	

(All students using Gymnasium pay a fee of $1.50 per semester for which they are given use of all equipment, baths, and are furnished with towels, soap, and medical supplies for injuries.)

Shopwork:		
Courses A, B, C, D, E, F, G, H, I, O, P, and 5, 6, 9, 10, 12, 13	3.00	2.00
Courses J, K	5.00	
Courses L, 7, 8	2.00	
Courses 1, 2, 3, 4, 11	2.00	2.00
Stenography:		
Courses A, B, C, 1, 2, 3, 4, 5, 6, 7, 8	2.00	
Zoology, Entomology, and Physiology:		
Courses 1, 2, 3, 4, 5, 6	1.00	
Mechanic Arts (Winter Course):		
Woodwork	3.00	
Blacksmithing	3.00	

BOARD AND ROOM.

Board and room accommodations may be had either in private family or in the College dormitories.

Women's Dormitory. Waldo Hall, with its large, airy parlors, halls, music and play rooms, is a pleasant residence for the young women who come from distant homes. The building is supplied throughout with pure mountain water, hot and cold in each room, electric lights, steam heat and all modern conveniences. The rooms are furnished with an iron bedstead, a mattress, a chiffonier, a table, and chairs. Such other materials as are needed to make the furnishings complete, including pillows, pillow cases, sheets, blankets, bed spread, are furnished by the student; and many of the students prefer to make the rooms more homelike by bringing rugs, curtains, pictures, sofa cushions, etc. These latter articles, however, are not at all necessary. The rooms are cheerful and comfortable without additional furniture. The bed rooms average about 12 feet by 15 feet, with one window 3 feet by 7 feet. Many of the rooms are larger, and a few of them have two windows. Each student also furnishes her own towels and table napkins. Students who room together may choose to have a double bed or two single ones. Their preference must be indicated with application for a room. No definite promise for a single room can be made, the privilege of rooming alone depending upon the number of applications for rooms. The many advantages of having a room-mate should not be overlooked by the student in making her plans for her college life.

The conditions of living in Waldo Hall are such that the College considers it a distinct advantage to the women students to live in the dormitory. A wholesome, busy, student atmosphere is maintained. Reasonable freedom is allowed, but week nights are reserved for study. All girls entering the College are expected to live in the dormitory unless their parents reside in the city, or they are given special permission to live with relatives or friends who assume the responsibility of their care.

The expenses of living, for each student, in Waldo Hall are a follows:

Room deposit	$3.0
Room rent per semester—	
Single room	10.0
Double room	5.0
Board per week, payable monthly in advance	3.5
Use of laundry, per semester	.5

Students who are planning to enter the School of Domesti Science and Art, or to live in Waldo Hall, are asked to write for special circulars giving more detailed information than will b found in the Catalogue.

Men's Dormitory. Cauthorn Hall, as a home for young men while in College, offers many inducements. There is room for about one hundred students. Accommodations in this Hall are similar to those described for the Women's Dormitory, the rooms being furnished with iron bedstead, mattress, chiffonier, table, and chairs. Students furnish bed clothing and other articles as desired. The Hall is conducted on the club plan, all business connected with the management of the club being in the immediate charge of a Manager and Steward elected by the members of the organization. This plan has proved to be very popular and successful, so much so, that more than twice as many students have been turned away than it was possible for the Hall to accommodate. The building, though having been in use for many years, is yet very substantial and, with the late improvements, is very comfortable. It is heated with steam heat, has hot and cold water on every floor, with all modern lavatory conveniences. The club rents the building from the College at the rate of $5.00 per student per semester. The club purchases all the supplies in as large quantities as possible, and at the best possible advantage. The club also pays for all heating, lighting, and water supply. Each person pays his portion of the actual cost of living, which may be varied from time to time as the club wishes. The actual cost of living for the past year, including all expenses, is about $16.85 per calendar month, or $3.90 per week. Not only does the Hall afford a very comfortable home while in College at minimum cost, but it is a place where friendships are formed which are never forgotten in after years.

Private Board. Board and room may be secured in private family in the City of Corvallis for from $3.50 to $4.50 per week. Good accommodations for self-boarding, or for club-boarding, can also be secured in the city. By clubbing, or renting rooms and boarding themselves, students materially reduce the cost of living. Students, however, will not be permitted to live at places not approved by the Faculty.

PERSONAL EXPENSES.

The personal expenses of students vary. Many students are able to go through the College year on a comparatively small amount. Books, including drawing instruments, will amount to between $10 and $25 per year. Each male student, immediately upon registration, is required to supply himself with military uniform, the cost of which will be approximately as follows: suit and cap, $15; tan shoes, $3.25; leggings, $1; gloves, 25c per pair; total $19.50. The uniform is very serviceable and is more economical than civilian clothing. Women pursuing work in physical culture are required to provide themselves with a gymnasium suit, consisting of blouse-waist and bloomers, with the regulation gymnasium shoes; the cost of the suit will be about $3.50. This suit should be serviceable for a number of years. The students in Domestic Science work provide themselves with cookery costume, consisting of dull blue dress, with white cap and apron. Students may make their own costumes, under the direction of the instructors in Domestic Art. The material will cost approximately $5.00.

SELF-SUPPORT.

Each year a number of students earn part or all of their expenses. The College employs a number of students in janitorial, farm, orchard, campus, laboratory, and clerical work. The two Christian Associations, the Y. M. C. A. and the Y. W. C. A., conduct an employment bureau; and, with the assistance of the College officials, do everything possible to help worthy students in the matter of securing employment. The policy of the College is to reduce all necessary expenses to the minimum, and in this way to aid those whose means are limited. In this respect the conditions are favorable; but it is advised that persons entering the institution have definite resources sufficient to meet their expenses for a time at least. Students who desire to file their application for employment should write to the Secretary of the Y. M. C. A., care of the Oregon Agricultural College.

CONDITIONS OF ADMISSION

SECONDARY COURSES.

To enter these courses, applicants must have completed the work required in the eighth grade of the public schools. These courses are established for the benefit of persons who desire industrial training; and no students will be admitted to them except those who live in parts of the State where no provision is made in the public high schools for industrial work. The minimum age of those entering the Secondary courses in Agriculture, Forestry, Mechanic Arts, Domestic Science and Art, and Commerce; and the special winter courses in Agriculture, Mechanic Arts, and Domestic Science and Art, is fifteen years. Those entering as special students must be at least eighteen years of age.

Good moral character is a requisite for admission. Students from other colleges or universities are required to furnish from those institutions certificates of honorable dismissal.

DEGREE COURSES.

For admission to the freshman class in any course in the College, the applicant must be at least sixteen years of age and must have completed all the subjects prescribed in the first and second years of the Oregon State high school course, or their equivalent. Applicants who have not completed Plane Geometry and Drawing will be given an opportunity to make up such deficiency during their freshman year.

The following credits are entrance requirements for admission to the freshman year: English 2, Algebra 1½, Plane Geometry 1, Drawing ½, Bookkeeping ½, Electives 3½. A credit represents the work of thirty-six weeks with five recitations a week and forty-five minutes to the recitation. Certificates from accredited high schools and academies will be accepted in lieu of examinations. Students who have completed any of the Secondary industrial courses offered by the College may be admitted without examination to the corresponding degree courses.

LIST OF ACCREDITED SCHOOLS.

High Schools.

Albany
Ashland
Astoria
Athena
Baker City
Ballston
Bandon
Bay City
Bend
Bonanza
Brownsville
Burns (County)
Canyon City
Central Point
Coburg
Condon
Coquille
Corvallis
Cottage Grove
Cove
Creswell
Crook (County)
Dayton
Drain
Echo
Elgin
Enterprise (County)
Eugene
Falls City
Forest Grove
Fossil
Frankton
Grants Pass
Grass Valley
Gresham (District 4)
Haines
Halsey
Harney (County)
Harrisburg
Heppner
Hermiston
Hillsboro
Hood River (District 2)
Hood River (District 3)
Independence
Ione
Irrigon
Island City
Jacksonville
Jefferson
Junction City
Klamath Falls (County)
Lafayette
La Grande
Lakeview
Lebanon
Lexington
Lostine
Marshfield
McMinnville
Medford
Monmouth
Muddy Creek
Myrtle Creek
Myrtle Point
Nehalem
Newberg
North Bend
North Powder
Nyssa

Ontario
Oregon City
Parkplace
Pendleton
Portland
Prineville (County)
Roseburg
Salem
Scio
Seaside
Sheridan
Silverton
Springfield
St. Helens
St. Johns
Sumpter
The Dalles
Tillamook
Toledo
Union
Wallowa (County)
Wasco
Weston
Wheeler
Woodburn

Academies.

Allen Preparatory School
Hill Military Academy
Pendleton Academy
Portland Academy
St. Helen's Hall
Tualatin Academy

ENTRANCE REQUIREMENTS.

English.

The examinations in freshman English will include questions in grammar and elementary rhetoric, based on the work in English as given in the tenth grade of an Oregon High School; and, in addition, one or more essays, to test the student's readiness and accuracy of expression.

One of the essays, to be written at the examination, will be on some theme connected with one or more of the books in the following list:

Burke's *Speech on Conciliation with America*
Shakespeare's *Julius Caesar*
Shakespeare's *Merchant of Venice*
Macaulay's *Essay on Addison*
Macaulay's *Essay on Johnson*
George Eliot's *Silas Marner*
Coleridge's *The Ancient Mariner*
Carlyle's *Essay on Burns*

In every case, knowledge of the book will be regarded as less important than the ability to write good English.

The other test in composition will consist of the writing of two paragraphs of about one hundred and fifty words each on some familiar topics, to test the applicant's ability to use the English language. These topics will be chosen by the candidate from a considerable number, perhaps six or eight, set before him in the examination paper. There should be correct spelling, capitalization, punctuation and paragraphing. Applicants notably deficient in any one of these fundamentals can not be accepted.

Read three or more books from the following list for 1911:

Irving's *Life of Goldsmith*
Dickens' *A Tale of Two Cities.*
Goldsmith's *The Vicar of Wakefield*
Bunyan's *The Pilgrim's Progress*
Emerson's *Essays* (selections)
Hawthorne's *The House of Seven Gables*
Thackeray's *Henry Esmond*
Ruskin's *Sesame and Lilies*
Burroughs' *Essays* (selections)

Candidates presenting exercise books containing compositions or other written work properly certified to by the instructor, will be given credit for such work.

Mathematics.

For entrance into the freshman year, a thorough working knowledge of the following topics in Algebra is required: additon, subtraction, multiplication and division of positive and negative numbers, use of parentheses, factoring, highest common factor, lowest common multiple, fractions, fractional and literal equations, simultaneous equations, problems involving linear equations with one or more unknown numbers, graphical representation of simultaneous linear and quadratic equations, involution, evolution, theory of exponents, radical expressions, imaginary numbers, quadratic equations, problems involving quadratic equations with one unknown number, equations in the quadratic form, factoring of quadratic equations, solution of quadratic equations by factoring, simultaneous quadratic equations, problems involving simultaneous quadratic equations with two unknown numbers.

The requirements in Plane Geometry are the five books of Wentworth's Plane Geometry, or of any other standard text on the subject. That the student may be trained to think for himself, and not be dependent upon the published proofs of the text, much importance is placed upon the proving of original exercises. It is strongly advised that students preparing for entrance examination in Geometry, devote considerable time to the study of original exercises.

Bookkeeping.

The entrance requirements for the freshman year in Bookkeeping are, a thorough knowledge of the rules of journalizing; posting; drawing and interpreting simple commercial forms.

Drawing.

Students having one-half credit in drawing will be admitted to the freshman year without condition, as stated under Entrance Requirements. All others will be required to take Drawing A and B or C.

ADVANCED STANDING.

Certificates of work completed in other institutions of recognized standing may be received in lieu of examinations for advanced standing, to the extent that such work is equivalent to the corresponding work required in the College courses.

SPECIAL STUDENTS.

Persons of the required age may be admitted as special students, provided they give satisfactory evidence of proper preparation for the studies desired, and have not already been admitted to the College, nor, having applied for admission, been rejected. Special students may be allowed to graduate in any of the courses on condition that they complete the required work and pass the necessary examinations.

IRREGULAR STUDENTS.

Applicants who meet all the entrance requirements may be admitted as irregular students, upon presenting satisfactory evidence that they are unable, because of poor health, or outside business or professional duties, to take a full course.

REGISTRATION.

All candidates for admission must present themselves for registration at the College on September 23 and 24, 1910. Registration at a later date will be permitted only on the presentation of a satisfactory reason for the delay. Students in all courses register at the beginning of the collegiate year for the work of the entire year. Credit for work not so registered, and changes in registration, will be allowed only by special permission of the College Council.

GRADUATION.

The degrees of Bachelor of Science in Agriculture, in Forestry, in Domestic Science and Art, in Civil Engineering, in Electrical Engineering, in Mechanical Engineering, in Mining Engineering, in Commerce, and in Pharmacy, are conferred upon those who have satisfactorily completed the respective four-year courses. A graduate in any of the courses may receive the bachelor's degree in any other course by completing the studies required in that course.

Advanced degrees are conferred upon graduates of this College, or other colleges and universities of approved standard, as follows: (1) Civil Engineer (C. E.), Electrical Engineer (E. E.), Mechanical Engineer (M. E.), and Mining Engineer (E. M.), upon those who have satisfactorily completed one year's graduate work in the respective engineering courses; (2) the degree of Master of Science (M. S.) in Agriculture, in Domestic Science and Art, in Civil Engineering, in Electrical Engineering, in Mechanical Engineering, and in Mining Engineering, upon those who satisfactorily complete two years' graduate work in the respective courses, at least one of which shall be in residence at the College; and who prepare a thesis, based upon original research, which shall show scholarly acquirements of a high order.

COURSES OF STUDY

The Oregon Agricultural College offers the following courses of study, each of which extends over four years, and leads to the degree of Bachelor of Science: Agriculture, including degree courses in Agronomy, Animal Husbandry, Dairy Husbandry, Horticulture, Poultry Husbandry, Agricultural Chemistry, Bacteriology, Entomology; Forestry; Domestic Science and Art; Mechanical Engineering; Electrical Engineering; Mining Engineering; Civil Engineering; Commerce; Pharmacy.

In addition to the above courses, provision has been made for the following secondary courses: Two-year courses in Agriculture, Forestry, Mechanic Arts, Domestic Science and Art, and Commerce.

During the year there are also offered the following short courses: A six-week course in Agronomy; a six-week course in Animal Husbandry; a six-week course in Horticulture; a six-week course in Dairying; a six-week course for Forest Rangers; a six-week course in Domestic Science and Art; Farmers' Week, and a six-week Summer School for Teachers.

COURSES IN AGRICULTURE.

The School of Agriculture offers a two-year course in secondary Agriculture; a four-year course leading to the degree of Bachelor of Science; a six-week winter course in Agronomy; a six-week winter course in Animal Husbandry; a six-week winter course in Dairying; a six-week winter course in Horticulture; and a Farmers' Week.

The **two-year course** is provided especially for those who have no opportunity to pursue their public school course beyond the eighth grade, or who from necessity or choice, desire, upon completing the work of this grade, to obtain as quickly as possible a working knowledge of the principles of agricultural science and practice. The technical instruction given during the course includes courses in Agronomy, Animal Husbandry, Horticulture, Dairy

Husbandry, Botany, Physiography, Business Administration, Drawing, Woodwork and Blacksmithing. Courses in English, Mathematics and History are provided so that students who finish these subjects and who so desire will be fully prepared to enter upon the degree course. This course also offers exceptional opportunities to teachers who desire to prepare themselves to teach elementary agriculture in the public schools. Such persons, if they so desire, may, upon registering as Special Students, be allowed to elect a complement of courses in Agricultural and Industrial Pedagogics, and thus be enabled to obtain a maximum of technical training in a minimum of time.

The four-year course is a continuation of the Secondary course; but students who have completed the work of the tenth grade of the public schools, including Plane Geometry and Drawing, will be permitted to register without conditions.

The various subjects of instruction may be conveniently arranged into three groups, each of which requires approximately one-third of the student's time: (a) Sciences related to agriculture, i. e., Botany, Zoology and Entomology, Chemistry, Physics, and Bacteriology; (b) technical agricultural subjects, i. e., Agronomy, Animal Husbandry, Dairy Husbandry, Horticulture, Poultry Husbandry, and Veterinary Science; (c) non-technical subjects, i. e., English Language and Literature, Mathematics, History, Economics, Modern Languages, Drawing, and similar subjects.

The subjects of the first group are designed to furnish the student with an insight into the principles of agricultural science. In the second group he learns of the application of these principles and also studies, both theoretically and practically, various subjects of agricultural technology. The subjects of the third group tend further to develop the student's intellect, broaden his view, and train him in good citizenship.

To indicate briefly the nature of the work, it may be stated that in the courses in Agronomy, the student studies the origin, structure, fertility, cultivation, and improvement of various soils; the history, growth, culture, improvement, and value of the different field crops; the structures, machinery, drainage, and irrigation of the farm; and the history, economics, methods, and business principles of farm management. There is also a thorough course in Business Administration, which will be given by the School of Commerce. In the course in Animal Husbandry, consideration is given to the history and characteristics of the various breeds of live-stock; the principles of breeding; the principles and practices of feeding with particular reference to conditions in this State; and by almost constant practice in stock judging, the student is made familiar with the good points of the various breeds. In Horticulture the student studies the problems of the orchard and garden, such as choice of site, soils, planting, pruning, choice of varieties, sprays and spraying, and thinning; he obtains instruction and practice in the propagation of plants by various methods; in the harvesting, packing, storage and marketing of fruits; he may study the principles of plant breeding or the construction and management of greenhouses or the culture of small fruits and vegetables for market or canning purposes. In Dairy Husbandry he studies the secretion, composition, and separation of milk; the proper handling of milk and cream; and obtains abundant practice in the use of the Babcock and other tests, in butter and cheese making and in creamery practice. A department of Poultry Husbandry has recently been organized, and now offers to students exceptional opportunities to specialize in this line. The instruction will include a study of breeds, the principles of feeding, housing and incubation, and will be supplemented by practical work on the farm. The organization of a department of Veterinary Science has been authorized by the Board of Regents.

The aim of the two and four-year courses is to train young men to become successful farmers, stockmen, and fruit growers; to prepare them to become specialists in some branch of agricultural college or experiment station work; or to fit them to become teachers of agriculture in the public schools. In short, they offer to those who have faith in the farm and in rural life, opportunities for intellectual development and technical training equal to those provided for the educated in other professions.

The courses extending through one week and six weeks are designed for special purposes, and it is the aim in each to furnish the greatest amount of special information in the least possible time. They are provided especially for those who desire technica training in some particular phase of agriculture, but have not the time nor the opportunity to pursue either of the degree courses.

SECONDARY COURSE IN AGRICULTURE.

First Year.

	Semesters.	
	1st.	2nd
Advanced Grammar I, II (English A B)	3	3
Classics I, II (English C, D)	2	2
Algebra I, II (Mathematics A, B)	5	5
Ancient History (History A)	3	
Mediaeval and Modern History (History B)		3
Drawing I, II (Art A, C)	2	2
Soils (Agronomy A)	1	
Crops (Agronomy B)		1
Stock Judging (Animal Husbandry A)	2	
Farm Dairying I (Dairy Husbandry A)		2
Elementary Orchard Practice (Horticulture A)	2	
Elementary Plant Propagation and Vegetable Gardening (Horticulture B)		2
	20	20

Second Year.

	1st.	2nd
Rhetoric and Composition I, II (English E, F)	3	3
Classics III, IV (English G, H)	2	2
Algebra III, Geometry I, II (Math. C, D, E)	5	5
Business Methods I, II (Bus. Ad E, F)	2	2
Farm Dairying II (Dairy Husbandry B)	2	
Elementary Farm Mechanics (Agronomy C)		2
Veterinary Science (Animal Husbandry B)	1	
Practical Stock-Feeding (Animal Husbandry C)		2
Plant Relations (Botany C)		2
Physiography A	3	
Woodwork V (Shopwork G)	2	
Blacksmithing III (Shopwork L)		2
	20	20

DEGREE COURSE IN AGRICULTURE.

Freshman Year.

	Semester. 1st.	Semester. 2nd.
Rhetoric I, II (English 1, 2)	3	3
Advanced Classics and Reading I, II (English 3, 4)	2	2
Trigonometry II (Mathematics 2)	3	
General Chemistry I (Chemistry 1)	4	
General Chemistry II (Chemistry 2)		4
Principles of Botany I, II (Botany 1, 2)	3	3
Basic Agronomy (Agronomy 1)	3	
Crop Production (Agronomy 2)		2
Plant Propagation (Horticulture 1)		2
Stock Judging II (Animal Husbandry 1)		2
Woodwork X (Shopwork 4)	2	
Blacksmithing VI (Shopwork 7)		2
Library Practice (Library 1)	1	
Hygiene (Physical Education 9)		1
	21	21

Sophomore Year.

	1st.	2nd.
General Physics I, II (Physics 1, 2)	3½	3½
Modern Language I, II (French, German, or Spanish)	3	3
Rural Economics (Political Economy 10)		3
Agricultural Botany (Botany 5)		3
Zoology I, II (Zoology 1, 2)	3	3
Agricultural Chemistry I, II (Chemistry 10, 11)	2½	2½
Drainage and Irrigation (Agronomy 3)		3
Live Stock Management (Animal Husbandry 2)	3	
Milk and Cream Testing (Dairy Husbandry 1)	2	
Orchard and Garden Practice (Horticulture 2)	3	
Elementary Bacteriology (Bacteriology 1)	1	
	21	21

Junior Year.

	1st.	2nd.
Argumentative Themes, Presentation (Public Speaking 1, 2)	1	1

Modern Language III, IV (French, German, or Spanish)	3	3
Major Electives, not over	7	7
Minor Electives, not less than	5	5
Theoretical Instruction I, II (Military Science 1,2)	1	1
	17	17

Senior Year.

Composition of Addresses, Extempore Speaking (Public Speaking 3, 4)	2	2
Major Electives, not over	8	8
Minor Electives, not less than	6	6
Theoretical Instruction III, IV (Military Science 3, 4)	1	1
	17	17

TRANSITION COURSE IN AGRICULTURE.

1910-1911.

Junior Year.

	Semester.	
	1st.	2nd.
Argumentative Themes, Presentation (Public Speaking 1, 2)	1	1
Modern Language III, IV (French, German, or Spanish)	3	3
General Physics I, II (Physics 1, 2)	3½	3½
Major Electives	5	5
Minor Electives	3½	3½
Theoretical Instruction I, II (Military Science 1, 2)	1	1
	17	17

Senior Year.

Composition of Addresses, Extempore Speaking (Public Speaking 3, 4)	2	2
Modern Language V, VI (French, German or Spanish)	3	3
Major Electives, not over	6	6
Minor Electives, not less than	5	5
Theoretical Instruction III, IV (Military Science 3, 4)	1	1
	17	17

All students working for degrees will be required to carry 17 credits throughout the Junior and Senior Years. Subjects other than those prescribed must be elected upon consultation with the head of the department with whom the major is taken. The major must be elected in one of the following departments: Animal Husbandry, Agronomy, Dairy Husbandry, Horticulture, Poultry Husbandry, Agricultural Chemistry, Bacteriology, Entomology, or Botany. The minors may be elected from any of the above departments, or from the departments of English, Mathematics, Physics, Commerce, or Civil Engineering. Students who so desire, may elect a course in General Agriculture upon consultation with the Dean of the School of Agriculture.

COURSE IN FORESTRY.

The forests of Oregon constitute a source of wealth second only to agriculture. The fast vanishing timber supply of other sections of the United States points clearly to the concentration of the demand for that product on the forests of this and other states of the Northwest. The evidence of an approaching timber famine is already apparent in the keen competition for the possession of forest lands, and it will become more apparent as the supply of forest products decreases. The sharp advance in the price of stumpage during the past few years, together with a better conception of what can be accomplished through forestry methods, has impressed timber owners with the desirability of adopting improved methods of managing and utilizing their properties.

The timber land of the State, both in private and in public ownership, has a two-fold value to the commonwealth. It carries immense wealth in the present stand of timber, and it has the potential value of being able to reproduce a forest when the present stand is removed. The forest land, then, like agricultural land, with wise management can be made to yield a perpetual revenue.

To meet the needs of the State in the conservation and development of its forest resources, the College has provided a regular course of four years which will be supplemented with a winter short course. While the purpose of the four-year course is to supply the student with all the technical instruction practicable, it takes full cognizance of the fact that a forester should also be prepared for citizenship. To this end, the course of study covers a field more liberal than that of a purely technical course. The aim of the course, then, is to train a force of men fitted to do a good work in bringing the forest resources of the State to the highest degree of continued productiveness.

SECONDARY COURSE IN FORESTRY.

First Year.

	Semesters, 1st.	Semesters, 2nd.
Advanced Grammar I, II (English A, B)	3	3
Classics I, II (English C, D)	2	2
Algebra I, II (Mathematics A, B)	5	5
Ancient History (History A)	3	
Mediaeval and Modern History (History B)		3
Elementary Drawing (Art A)	2	
Scientific Drawing I (Art C)		2
Business Methods I, II (Business Administration E, F)	2	2
Elementary Forestry I, II (Forestry A, B)	3	3
	20	20

Second Year.

	Semesters, 1st.	Semesters, 2nd.
Rhetoric and Composition I, II (English E, F)	3	3
Classics III, IV (English G, H)	2	2
Algebra III, Geometry I, II (Mathematics C, D, E)	5	5
Silviculture I, II (Forestry C, D)	2	2
Plant Relations (Botany C)		2
Veterinary Science (Animal Husbandry B)	1	
Civil Government (Political Science A)	2	
Elementary Commercial Law II (Political Science C)		2
Mechanical Drawing I (Mechanical Engineering 1)	3	
Woodwork V (Shopwork G)	2	
Blacksmithing III (Shopwork L)		2
Range Management (Animal Husbandry 6)		2
	20	20

DEGREE COURSE IN FORESTRY.

Freshman Year.

	Semesters, 1st.	2nd.
Rhetoric I, II (English 1, 2)	3	3
Advanced Classics (English 3, 4)	2	2
Trigonometry I and College Algebra I (Math. 1, 4)	5	
Plane Surveying I (Civil Engineering 1)		5
General Chemistry I (Chemistry 1)	4	
General Chemistry II (Chemistry 2)		4
Principles of Botany I, II (Botany 1, 2)	3	3
General Forestry (Forestry 1, 2)	3	3
Library Practice (Library 1)	1	
Hygiene (Physical Education 9)		1
	21	21

Sophomore Year.

	1st.	2nd.
Modern Language I, II (French, or German)	3	3
General Physics III, IV (Physics 3, 4)	5	5
Zoology I, II (Zoology 1, 2)	3	3
Plant Histology (Botany 3)	3	
Morphology and Taxonomy of Seed Plants (Botany 4)		3
Silviculture III (Forestry 3, 4)	3	4
Topographic Surveying (Civil Engineering 5)	4	
General Geology (Geology 3)		3
	21	21

Junior Year.

	1st.	2nd.
Argumentative Themes, Presentation (Public Speaking 1, 2)	1	1
Modern Language II, IV (French or German)	3	3
Plant Physiology I, II (Botany 6, 7)	3	3
Principles of Plant Pathology (Botany 8)	3	
Diseases of Forest and Shade Trees (Botany 11)		3
Introductory Entomology (Zoology 8)	3	

Forest Entomology (Zoology 11)	
Mensuration and Survey I, II (Forestry 5, 6)	3
Theoretical Instruction I, II (Military Science 1, 2)	1
	17

Senior Year.

Composition of Addresses (Public Speaking 3)	2
Elements of Steam Engineering (Mech. Eng. 9)	2
Management I, II (Forestry 7, 8)	5
Utilization (Forestry 9)	2
Lumbering (Forestry 10)	
Dendrology (Forestry 11)	3
Wood Technology (Forestry 12)	
Wood Preservation (Forestry 13)	2
National Forest Administration (Forestry 14)	
Theoretical Instruction III, IV (Military Science 3, 4)	1
	17

Note.—Substitutions for other courses:

Camp management, Forestry 15, no credit.

Field work, Forestry 16. Eight weeks between the junior and senior years, 4 credits.

COURSES IN DOMESTIC SCIENCE AND ART.

The purpose of the School of Domestic Science and Art is the discovery and development of woman's potentialities which are frequently neglected in her education and the solution of problems in her life not usually solved by her education.

The school aims to make the woman it graduates a woman of culture and broad interests, able to cope successfully with life's problems, particularly those distinctly her own. With this aim in view it offers courses in English, Mathematics, History and the Languages, as well as courses in the sciences fundamental to the understanding of proper cooking and hygienic living; also courses in Art to train the eye and the hand and to form a basis for constructive art work, such as is appropriate to courses in Basketry, Weaving, House-Construction and Decoration. The student has an opportunity frequently to apply her class work to real problems in decoration for social functions and in the preparation of the refreshments for such entertainments as are given by the College. This work should also prepare a woman to deal successfully with various phases of professional work along the lines of Domestic Science and Art in which there is a growing demand for well trained women.

SECONDARY COURSE IN DOMESTIC SCIENCE AND ART.

First Year.

	Semesters, 1st.	Semesters, 2nd.
Advanced Grammar I, II (English A, B)	3	3
Classics I, II (English C, D)	2	2
Algebra I, II (Mathematics A, B)	5	5
Ancient History (History A)	3	
Mediaeval and Modern History (History B)		3
Drawing I, II (Art A, C)	2	2
Plain Cookery I, II (Domestic Science A, B)	3	3
Plain Sewing I, II (Domestic Art A, B)	2	2
	20	20

Second Year.

	1st.	2nd.
Rhetoric and Composition I, II (English E, F)	3	3
Classics III, IV (English G, H)	2	2
Algebra III, Plane and Solid Geometry (Math. C, D, E)	5	5
Drawing III, IV (Art D, E)	2	2
Essentials of Botany I, II (Botany A, B)	2	2
Cookery, Serving, Simple Dietetics I, II (Dom. Sci. C, D)	2	2
Sewing, Simple Dresses and Millinery I, II (D. A. C, D)	3	3
Laundering I, II (Domestic Science E, F)	1	1
	20	20

DEGREE COURSE IN DOMESTIC SCIENCE AND ART.

Freshman Year.

	Semesters, 1st.	Semesters, 2nd.
Rhetoric I, II (English 1, 2)	3	3
Advanced Classics and Reading I, II (English 3, 4)	2	2
General Chemistry (Chemistry 3)	4	
Elementary Organic Chemistry (Chemistry 4)		4
Botany I, II (Botany 1, 2)	3	3
English History (History 1)	3	
United States History (History 2)		3
Science of Cookery I (Domestic Science 1)	3	
Science of Cookery II (D. S. 2) or Simple Dietetics (D. S. 3)		3
Sewing I, II (Domestic Art 1, 2)	2	2
Library Practice (Library 1)	1	
Hygiene (Physical Education 9)		1
	21	21

Sophomore Year.

	Semesters, 1st.	Semesters, 2nd.
Exposition and Argumentation (English 5)	3	
The Essay (English 6)		3
Modern Language I, II (French, German, or Spanish), or Latin I, II	3	3
Physics VII, VIII (Physics 7, 8)	3	3
Chemistry of Foods (Chemistry 14)	4	
Zoology III (Zoology 3)		3
Design I, II (Art 2, 3)	2	2
Simple Dressmaking, Hand Sewing and Millinery I, II (Domestic Art 3, 4)	3	3
Advanced Cookery I, II (Domestic Science 4, 5)	3	3
Laundering III (Domestic Science 6)		1
	21	21

Junior Year.

English Literature I, II (English 7, 8)	3	3
Modern Language III, IV (French, German, or Spanish), or Latin III, IV	3	3
Physiology and Hygiene I, II (Zoology 4, 5)	3	3
Home and Private Business Management (Bus. Adm. 9)	2	
Floriculture (Horticulture 29)	2	
Landscape Gardening (Horticulture 30)		2
Dressmaking and Tailoring (D. A. 5), or Special Cookery (D. S. 7)	2	
Home Nursing (Domestic Science 8)		1
House Construction and Decoration (D. A. 6)		3
Basketry I, II (D. A. 7, 8) 2 credits each semester		
or		
Marketing (D. S. 9) and	2	
Home Problems (Domestic Science 10)		2
	17	17

Senior Year.

American Literature I, II (English 9, 10)	2	2
General Psychology (Psychology 1)	3	
Bacteriology I, II (Bacteriology 6, 7)	2	2
House Sanitation (Domestic Science 11)		2
Vegetable Gardening and Small Fruit Culture (Hort. 31)		3
Thesis	2	2
Electives	8	6
	17	17

SECONDARY COURSE IN MECHANIC ARTS.

The Secondary Course in Mechanic Arts is designed to meet the needs of those students who desire industrial training. It is open to those who have completed the eighth grade State examinations, provided they do not come from places where local high schools are offering the same line of work. It is thought that this course will be helpful to those who desire to become workers in wood or metal; to those who wish to teach industrial work in the schools of the State, or elsewhere, as well as to those who intend to take one of the degree courses later. The scope of the work is necessarily more limited than in the degree courses, but special stress is laid upon the industrial features. The tendency of modern education is toward industrial training. Many believe that this training should begin in the common schools. If so, colleges and secondary schools must supply teachers who are proficient in this work.

In this course, one-third of the student's time must be given to the distinctively industrial work. Woodwork is required during the first year, but considerable latitude is allowed in the selection of the work of the second year.

The student is brought into actual contact with the work itself by being required to become proficient in the construction of useful articles of wood and metal. The purpose throughout is to combine the training of mind, hand, and eye in a manner that will enable the student to formulate plans rapidly and execute them skilfully

First Year.

	Semesters,	
	1st.	2nd.
Advanced Grammar I, II (English A, B)	3	3
Classics I, II (English C, D)	2	2
Algebra I, II (Mathematics A, B)	5	5
Ancient History (History A)	3	
Mediaeval and Modern History (History B)		3
Drawing I (Art A)	2	
Machine Sketching (Art B)		2
Woodwork I, II (Shopwork A, B)	5	5
	20	20

Second Year.

Rhetoric and Composition I, II (English E, F)	3	3
Classics III, IV (English G, H)	2	2
Algebra III, Geometry I, II (Math. C, D, E)	5	5
Elementary Physics I, II (Physics A, B)	3	3

Business Methods I, II (Bus. Ad. E, F)	2	2
Woodwork III and IV (Shop. C, D), Patternmaking I, II (Shop. E, F), Woodwork VI, VII (Shop. H, I) Woodwork XI XII (Shop. O, P), or Blacksmithing I, II (Shop. J, K)	5	5
	20	20

COURSE IN CIVIL ENGINEERING.

The purpose of this course is to give the student thorough theoretical instruction, accompanied by as much laboratory and field practice as possible. The course includes such basic studies as English, Mathematics, Chemistry, Physics, Drawing, Materials of Engineering, Applied Mechanics and Hydraulics, in addition to the technical work given by this department. During the sophomore and junior years the student may take either German, French or Spanish. In addition to the required studies, the student has opportunity, during the senior year, to elect from the other engineering courses subjects that may be of special interest to him.

Recognizing the value of drawing to the professional engineer as a means of expressing his ideas and of carrying out his plans, and also as a means by which the young graduate may enter some of the most desirable positions, the department lays special emphasis upon this subject. Besides the general course given in Mechanical Engineering and required of students in the course in Civil Engineering, three additional and more technical courses are required in the Civil Engineering course. One of these, a course in Lettering and Title Design, is given by the department of Art, the others by this department. Much additional drawing is required in connection with the preparation of plans and working drawings as part of the office work of the higher technical courses.

The work in Field Surveying begins with the freshman year, and continues through the sophomore year, with from six to ten hours of field practice a week. The student serves in subordinate positions at first, and gradually advances as a knowledge of the instruments is acquired until he is placed in charge of field parties and is held responsible for the results accomplished. During the freshman year he is given practice in land surveying and leveling, and in topographic and railroad surveying during the sophomore year. At all times conscientious attention to duty, accuracy and speed will be demanded. Every student keeps full and accurate notes of all work done in the field. These, after being criticised, are transcribed and filed with the instructor.

In the study of Highways, special reference is made to the conditions and needs in Oregon. Due consideration is given to the drainage, and maintenance of dirt and gravel roads. In consequence of the vast area of the State, this class of roads must, of necessity, constitute the greater part of its highways for many years. The courses in theoretical and applied hydraulics cover a period of one and a half years. The various irrigation projects of Oregon offer excellent opportunities for study and work to our students and graduates.

DEGREE COURSE IN CIVIL ENGINEERING.

Freshman Year.

	Semesters, 1st.	2nd
Rhetoric I, II (English 1, 2)	3	3
Advanced Classics and Reading (English 3)	2	
Trigonometry I, College Algebra I, II (Math. 1, 4, 5)	5	5
Spherical Trigonometry (Mathematics 3)	1	
General Chemistry I (Chemistry 1)	4	
General Chemistry II (Chemistry 2)		4
Mechanical Drawing I (Mechanical Engineering 1)	3	
Descriptive Geometry (Mechanical Engineering 2)		3
Plane Surveying I (Civil Engineering 1)		5
Freehand Lettering and Title Design (Art 1)	2	
Library Practice (Library 1)	1	
Hygiene (Physical Education 9)		1
	21	21

Sophomore Year.

nalytic Geometry, Calculus I, II (Math. 6, 7, 8)	5	5
rgumentative Themes, Presentation (Public Speaking 1, 2)	1	1
eneral Physics III, IV (Physics 3, 4)	5	5
odern Language I, II (French, German, or Spanish)	3	3
opographic Surveying (Civil Engineering 5)	4	
ailroads I, II (Civil Engineering 6, 7)	1	5
ngineering Drawing I, II (C. E. 3, 4)	2	2
	21	21

Junior Year.

omposition of Addresses, Extemporė Speaking (Public Speaking 3, 4)	2	2
odern Language III, IV (French, German, or Spanish)	3	3
tatics and Dynamics (Mechanical Engineering 5)	4	
trength of Materials (Mechanical Engineering 6)		2
ydraulics (Mechanical Engineering 7)		2
aterials of Engineering (M. E. 8)	2	
ngineering Laboratory (M. E. 11, 12)	2	2
ighway Construction (Civil Engineering 8)	3	
ngineering Seminar I (Civil Engineering 16)		1
asonry and Foundations (Civil Engineering 9)		4
heoretical Instruction I, II (Military Science 1, 2)	1	1
	17	17

Senior Year.

oofs and Bridges I, II (Civil Engineering 10, 11)	4	4
anitary Engineering (Civil Engineering 12)	3	
ater Supply Engineering (Civil Engineering 13)	3	
ontracts and Specifications (Civil Engineering 15)		1
rrigation Engineering (Civil Engineering 14)		4
ngineering Seminar II, III (Civil Engineering 17, 18)	1	1
lectives	5	6
heoretical Instruction III, IV (Military Science 3, 4)	1	1
	17	17

TRANSITION COURSE IN CIVIL ENGINEERING.

(Effective for the year 1910-1911)

Junior Year.

	Semesters, 1st.	2nd.
Analytic Geometry, Calculus I, II (Mathematics 6, 7, 8)	5	5
Argumentative Themes (Public Speaking 1)	1	
Presentation (Public Speaking 2)		1
Modern Language III, IV (French, German, or Spanish)	3	3
Topographic Surveying (Civil Engineering 5)	3	
Railroads I, II (Civil Engineering 6, 7)	2	5
Engineering Geology (Geology 4)		3
Materials of Engineering (Mechanical Engineering 8)	2	
Theoretical Instruction I, II (Military Science 1, 2)	1	1
	17	18

Senior Year.

	1st.	2nd.
Statics and Dynamics (Mechanical Engineering 5)	4	
Strength of Materials (Mechanical Engineering 6)		2
Hydraulics (Mechanical Engineering 7)		2
Engineering Laboratory (M. E. 11, 12)	2	2
Highway Construction (Civil Engineering 8)	5	
Masonry and Foundations (Civil Engineering 9)		5
Engineering Seminar I, II (Civil Engineering 16, 17)	1	1
Theoretical Instruction III, IV (Military Science 3, 4)	1	1
Electives	4	4
	17	17

COURSE IN ELECTRICAL ENGINEERING.

It is a fact well known to engineers that the development of water power in Oregon has only begun, and when all of the streams are generating electrical energy for railways, lighting and manufacturing purposes, there will be several millions of horse power continually in the service of mankind. The value of the output of the large hydro-electric plants then in operation will be enormous.

Owing to the depletion of the coal supply with the progress of time, the water wheel must ultimately be substituted for the steam engine in the manufacturing of many products. Processes in the reduction of metals; in the making of abrasives; and in the manufacture of chemicals, including nitric acid and nitrates, for fertilizers, may all be carried on in this State to advantage because of the cheapness of electrical energy obtained from the mountain streams. The field of electro-chemistry is a promising one to those who have tastes leading them in that direction. The installation and operation of power systems will require the employment of many highly trained young men.

Because of these great opportunities much stress is laid upon the studies which will best fit the student for his chosen work. The course is so designed, however, that theory given in the class room is supplemented by its practical application in the shops and laboratories.

The first two years are devoted to the same studies as are required in Mechanical Engineering. At the beginning of the third year the real professional work is taken up and continued to the end of the course. A study is made of the structure and principles involved in the design of the several types of dynamos, and electrical appliances; of the operation of machines and apparatus; of their commercial applications; and of the phenomena incident to the use of high tension alternating currents, the College substation of a long-distance transmission line being available for illustrative and testing purposes.

DEGREE COURSE IN ELECTRICAL ENGINEERING.

Freshman Year.

	Semesters,	
	1st.	2nd.
Rhetoric I, II (English 1, 2)	3	3
Advanced Classics I, II (English 3, 4)	2	2
Trigonometry I, College Algebra I, II (Math. 1, 4, 5)	5	5
General Chemistry I (Chemistry 1)	4	
General Chemistry II (Chemistry 2)		4
Mechanical Drawing I (Mechanical Engineering 1)	3	

Descriptive Geometry (Mechanical Engineering 2)....		3
Woodwork VIII (Shopwork 1)......................	3	
Patternmaking III (Shopwork 2)..................		3
Library Practice (Library 1)......................	1	
Hygiene (Physical Education 9)....................		1
	21	21

Sophomore Year.

Analytic Geometry and Calculus I, II (Math. 6, 7, 8)..	5	5
General Physics III, IV (Physics 3, 4)..............	3	3
Argumentative Themes, Presentation (Public Speaking 1, 2)..	1	1
Modern Language I, II (French, German, or Spanish)..	3	3
Mechanical Drawing II (Mechanical Engineering 3)..	4	
Mechanism (Mechanical Engineering 4).............		4
Blacksmithing IV (Shopwork 5)....................	3	
Machine Shop (Mechanical Engineering 9)..........		3
	21	21

Junior Year.

Composition of Addresses, Extempore Speaking (Public Speaking 3, 4)..................................	2	2
Modern Language III, IV (French, German, or Spanish)	3	3
Statics and Dynamics (Mechanical Engineering 5)....	4	
Strength of Materials (Mechanical Engineering 6)....		2
Hydraulics (Mechanical Engineering 7).............		2
Electrical and Magnetic Measurements (Physics 9)...	2	
Steam Machinery (Mechanical Engineering 10).......		2
Dynamo-Electric Machinery (Electrical Engineering 1)	3	
Alternating Currents (Electrical Engineering 2)......		3
Electrical Engineering Laboratory I, II (E. E. 4, 5)..	2	2
Theoretical Instruction I, II (Military Science 1, 2)..	1	1
	17	17

Senior Year.

American Literature (English 8, 9)	2	2
Advanced Alternating Currents (E. E. 3)	3	
Power Plants (Electrical Engineering 11)		3
Electrical Design I, II (Electrical Engineering 9, 10)	3	3
Electrical Engineering Laboratory III, IV (E. E. 6, 7)	2	2
Electrical Distribution (Electrical Engineering 8)	2	
Thesis (Electrical Engineering 16)	1	1
Telephony (Electrical Engineering 15)		2
Storage Batteries (Electrical Engineering 14)		1
Thermodynamics (Mechanical Engineering 15)	3	
Engineering Laboratory II (M. E. 12)		2
Theoretical Instruction III, IV (Military Science 3, 4)	1	1
	17	17

TRANSITION COURSE IN ELECTRICAL ENGINEERING.

Junior Year.

	Semesters,	
	1st.	2nd.
Analytic Geometry, Calculus I, II (Math. 6, 7, 8)	5	5
Argumentative Themes, Presentation (Public Speaking 1, 2)	1	1
Modern Language I, II (French, German, or Spanish)	3	3
Steam Machinery (Mechanical Engineering 10)		2
Electrical and Magnetic Measurements (Physics 9)	2	
Dynamo-Electric Machinery (E. E.)	3	
Alternating Currents (Electrical Engineering 2)		3
Electrical Engineering Laboratory I, II (E. E. 4, 5)	2	2
Theoretical Instruction I, II (Military Science 1, 2)	1	1
	17	17

Senior Year.

Composition of Addresses (Public Speaking 3)	2	
Modern Language III, IV (French, German, or Spanish)	3	3

Statics and Dynamics (Mechanical Engineering 5)....	4	
Strength of Materials (Mechanical Engineering 6)....		2
Hydraulics (Mechanical Engineering 7)..............		2
Advanced Alternating Currents (E. E. 3)............	3	
Power Plants (Electrical Engineering 11)............		3
Electrical Design (Electrical Engineering 9, 10)......	2	2
Electrical Engineering Laboratory III, IV (E. E. 6, 7)	2	2
Thesis (Electrical Engineering 16)..................		2
Theoretical Instruction III, IV (Military Science 3, 4)	1	1
	17	17

COURSE IN MECHANICAL ENGINEERING.

The course in Mechanical Engineering has for its purpose the preparation of young men for positions of usefulness and responsibility in the industrial life of the country.

The Pacific Northwest is just now entering upon a period of rapid progress in the building of railroads, the development of water power, the marketing of forest products, and the upbuilding of manufactories; all of which require men conversant with the general principles of engineering. It is the purpose of all engineering courses to contribute to this general advancement by turning out graduates equipped with the necessary knowledge and skill to make them active factors in this great work.

It is the general plan of the course in Mechanical Engineering to lay a broad foundation in English, Mathematics, Chemistry, and Physics, accompanied by Drawing and Shopwork, during the first two years of the course. The work of the last two years is more technical and professional in its nature consisting in a study of the principles involved in the development of power by steam engines, water wheels, gas and gasoline engines, and steam turbines. It also involves a critical study of the design of machines and materials entering into their construction, as well as tests to determine their efficiency.

Instruction is given by means of lectures, recitations, and laboratory exercises. The scientific principles involved in machines and mechanical movements are taught in the class room as well as the application of mathematics to the solution of problems in mechanical engineering. In the shops, the student learns the use of tools and the value of different methods of doing work from the standpoint of economical construction. In the drafting room, he learns to make working drawings and blueprints of machines, and to formulate designs of his own.

With these advantages to aid him, the ambitious student should be able to take and maintain a position in the general industrial and engineering development which is the leading and characteristic feature of the age in which we live.

DEGREE COURSE IN MECHANICAL ENGINEERING.

Freshman Year.

	Semesters, 1st.	2nd.
Rhetoric I, II (English 1, 2)	3	3
Advanced Classics and Reading (English 3, 4)	2	2
Trigonometry I, College Algebra I, II (Math. 1, 4, 5)	5	5
General Chemistry I, II (Chemistry 1, 2)	4	4
Mechanical Drawing I (Mechanical Engineering 1)	3	
Descriptive Geometry (Mechanical Engineering 2)		3
Woodwork VIII (Shopwork 1)	3	
Patternmaking III (Shopwork 2)		3
Library Practice (Library 1)	1	
Hygiene (Physical Education 9)		1
	21	21

Sophomore Year.

	1st.	2nd.
Analytic Geometry and Calculus I, II (Math. 6, 7, 8)	5	5
General Physics III, IV (Physics 3, 4)	5	5
Argumentative Themes, Presentation (Public Speaking 1, 2)	1	1
Modern Language I, II (French, German, or Spanish)	3	3
Mechanical Drawing II (Mechanical Engineering 3)	4	
Blacksmithing IV, V (Shopwork 5, 6)	3	3
Mechanism (Mechanical Engineering 4)		4
	21	21

Junior Year.

Composition of Addresses, Extempore Speaking (Public Speaking 3, 4)	2	2
Modern Language III, IV (French, German, or Spanish)	3	3
Statics and Dynamics (Mechanical Engineering 5)	4	
Strength of Materials (Mechanical Engineering 6)		2
Hydraulics (Mechanical Engineering 7)		2
Materials of Engineering (M. E. 8)	2	
Engineering Laboratory I, II (M. E. 11, 12)	2	2
Machine Shop I, II (Shopwork 9, 10)	3	3
Steam Machinery (Mechanical Engineering 10)		2
Theoretical Instruction I, II (Military Science 1, 2)	1	1
	17	17

Senior Year.

Machine Design I, II (M. E. 13, 14)	4	4
Thermodynamics (Mechanical Engineering 15)	3	
Hydraulic Motors (Mechanical Engineering 18)	2	
Internal Combustion Motors (M. E. 16)		2
Steam Turbines (Mechanical Engineering 17)		2
Thesis	1	2
Electives	6	6
Theoretical Instruction III, IV (Military Science 3, 4)	1	1
	17	17

TRANSITION COURSE IN MECHANICAL ENGINEERING.

Junior Year.

	Semesters,	
	1st.	2nd.
Analytic Geometry and Calculus I, II (Math. 6, 7, 8)	5	5
Argumentative Themes, Presentation (Public Speaking 1, 2)	1	1
Modern Language III, IV (French, German, or Spanish)	3	3
Plane Surveying I (Civil Engineering 2)		3
Mechanism (Mechanical Engineering 4)	3	
Materials of Engineering (Mechanical Engineering 8)	2	

Steam Machinery (Mechanical Engineering 10)		2
Machine Shop I, II (Shopwork 9, 10)	2	2
Theoretical Instruction I, II (Military Science 1, 2)	1	1
	17	17

Senior Year.

Statics and Dynamics (Mechanical Engineering 5)	4	
Strength of Materials (Mechanical Engineering 6)		2
Hydraulics (Mechanical Engineering 7)		2
Engineering Laboratory I, II (M. E. 11, 12)	2	2
Machine Design I, II (M. E. 13, 14)	4	4
Theoretical Instruction III, IV (Military Science 3, 4)	1	1
*Electives	6	6
	17	17

*Students will be required to elect a modern language or Public Speaking 3, 4.

COURSE IN MINING ENGINEERING.

The course in Mining Engineering is planned to give the student a thorough knowledge of the principles which form the groundwork of the sciences of Mining and Metallurgy.

It is the aim of the Mining Engineering department in arranging the courses to give the student first a drill in the fundamental studies common to all engineering courses, such as Mathematics, Chemistry, English, Physics, Drawing, Mechanics, etc. In the latter part of his course he applies the principles of these fundamental studies to the more distinctive technical subjects, such as Mineralogy, Geology, Mining, Mine Surveying, Metallurgy, and Ore Dressing.

The methods of instruction include the ordinary lecture, textbook, and recitation work, supplemented, as far as possible, by problems and illustrations drawn from actual mining and metallurgical practice. The successful mining engineer deals largely with concrete problems, hence the laboratory method of instruction is given a very important place in the training of the student. A portion of the last two summers is devoted to summer school work in Mine Surveying, and Mining and Metallurgical inspection. The students are required to keep systematic notes on the summer work, and to turn in to the professor in charge a complete report. On these trips of inspection, visits are made to plants which exemplify, often on a large scale, the application of principles taught in the class room to problems of commercial operation.

The technical training for the mining engineer is broad rather than highly specialized. Aside from the basic subjects common to all engineering courses, he must be well grounded in the principles of Chemistry, Metallurgy, and Geology. A student who pursues the Mining Engineering course to completion is able to choose his life work from among a number of distinct industrial lines; for example, he may choose his work in the management, investigation and exploitation of mines; he may choose his work in Ore Dressing, which covers the separation of the valuable minerals from the waste; he may go into metallurgical lines where he extracts the metal from its ores and puts it in shape for the market; or he may choose his work along geological lines and work either for the National Government or for private corporations.

DEGREE COURSE IN MINING ENGINEERING.

Freshman Year.

	Semesters,	
	1st.	2nd.
Rhetoric I, II (English 1, 2)	3	3
Advanced Classics and Reading I (English 3)	2	
Trigonometry I, College Algebra I, II (Math. 1, 4, 5)	5	5
General Chemistry I, II (Chemistry 1, 2)	4	4
Mechanical Drawing I (Mechanical Engineering 1)	3	
Descriptive Geometry (Mechanical Engineering 2)		3
Plane Surveying I (Civil Engineering 1)		5
Woodwork IX (Shopwork 3)	3	
Library Practice (Library 1)	1	
Hygiene (Physical Education 9)		1
	21	21

Sophomore Year.

Analytic Geometry and Calculus I, II (Math. 6, 7, 8)	5	5
Physics III, IV (Physics 3, 4)	5	5
Argumentative Themes, Expression (Pub. Speaking 1, 2)	1	1
Qualitative Analysis II (Chemistry 6)	3	
Quantitative Analysis II (Chemistry 8)		3
Crystallography and Blowpipe Analysis (Geology 1)	4	
Determinative Mineralogy (Geology 2)		4
General Geology (Geology 3)		3
Blacksmithing VII (Shopwork 8)	3	
	21	21

Junior Year.

Composition of Addresses, Extempore Speaking (Public Speaking 3, 4)	2	2
Statics and Dynamics (Mechanical Engineering 5)	4	
Strength of Materials (Mechanical Engineering 6)		2
Hydraulics (Mechanical Engineering 7)		2
Fire Assaying (Mining Engineering 7)	4	
Mine Surveying and Mining Law (Mining Eng. 2)		3
General Metallurgy (Mining Engineering 8)	3	
Mining I (Mining Engineering 3)		3
Electives	3	4
Theoretical Instruction I, II (Military Science 1, 2)	1	1
	17	17

Senior Year.

Petrology (Geology 6)	3	
Economic Geology (Geology 5)		3
Mining II (Mining Engineering 4)	3	
Ore Dressing I, II (Mining Engineering 5, 6)	3	3
Engineering Laboratory I, II (M. E. 11, 12)	2	2
Contracts and Specifications (Civil Engineering 15)		1
Thesis	1	2
Electives	4	5
Theoretical Instruction III, IV (Military Science 3, 4)	1	1
	17	17

TRANSITION COURSE IN MINING ENGINEERING.

1910-1911.

Junior Year.

	Semesters, 1st.	2nd.
Analytic Geometry and Calculus I, II (Mach. 6, 7, 8)	5	5
Argumentative Themes, Expression (Pub. Speaking 1, 2)	1	1
Crystallography and Blowpipe Analysis (Geology 1)	4	
Determinative Mineralogy (Geology 2)		4
Fire Assaying (Mining Engineering 7)	4	
General Geology (Geology 3)		3
Electives	3	3
Theoretical Instruction I, II (Military Science 1, 2)	1	1
	18	17

Senior Year.

	1st.	2nd.
Composition of Addresses, Extempore Speaking (Public Speaking 3, 4)	2	2
Statics and Dynamics (Mechanical Engineering 5)	4	
Strength of Materials (Mechanical Engineering 6)		2
Hydraulics (Mechanical Engineering 7)		2
Petrology (Geology 6)	3	
Economic Geology (Geology 5)		3
Metallurgy of Gold and Silver (Mining Eng. 10)	3	
Ore Dressing I (Mining Engineering 5)		3
Electives	4	4
Theoretical Instruction III, IV (Military Science 3, 4)	1	1
	17	17

COURSE IN COMMERCE.

The most progressive colleges and universities are now offering courses in commerce and finance. These courses have rapidly gained favor in response to an almost universal demand for thoroughly trained men to assume leadership in the commerce of the world.

The School of Commerce has been established in harmony with this modern tendency in education. Its aim is to do for the business man what the trade school does for the mechanic, what the school of engineering does for the engineer, or what the school of law does for the lawyer. It does not claim to turn out finished business men or ''captains of industry,'' but men who shall seek and be prepared to assume, the responsibilities of commercial and financial leadership after a comparatively short apprenticeship and practical experience.

A thorough business course, therefore, covers more than a study of bookkeeping, commercial law, and penmanship, though all are subjects of the greatest importance. Thorough courses in English, economics, modern languages, mathematics, natural sciences, etc., are equally important. In fact, all are in a sense only means to one end: to facilitate the profitable exchange of commodities in the form of property or service. Hence the advantage of incorporating business courses into the curricula of the higher institutions of learning where courses in the basic subjects are already given.

The professional courses offered by the School of Commerce have been arranged and selected with special reference to two classes of students: the prospective business manager, and the office employee. The latter studies chiefly the methods and technique of commerce, while the former lays special stress on the principles of economics and commerce. Two distinct courses are offered: a two-year course leading to a certificate of graduation, and a four-year course leading to the degree of Bachelor of Science. The Theory and Practice of Accounts, Stenography, and Commercial Law, are the principal technical subjects in the two-year course; while Economics, Trade and Transportation, Banking and Finance, Political Science, International Relations, and Public Accounting and Administration, are the professional subjects in the degree course. Special stress is laid on English in both courses, and the cultural development of the student is duly emphasized.

But while the School of Commerce emphasizes work preparatory to commercial pursuits, the fact that there is a business side to every vocation has been recognized by providing, in the second year of the Secondary courses, a two-hour course in Business Methods, especially adapted for the farmer, mechanic, housekeeper, professional man, etc. The exceptional laboratory and library facilities of the department are enjoyed by all students alike.

The Commercial course is especially attractive as a preparation for law; for teachers of commercial subjects; for public accountants; for administrative secretaries; and as a preparation for the Civil Service.

SECONDARY COURSE IN COMMERCE.

First Year.

	Semesters, 1st.	2nd.
Advanced Grammar and Composition I, II (Eng. A, B)	3	3
Classics I, II (English C, D)	2	2
Algebra I, II (Mathematics A, B)	5	5
Ancient History (History A)	3	
Mediaeval and Modern History (History B)		3
Business Forms I, II (Business Administration A, B)	4	4
Penmanship I, II (Penmanship A, B)	1	1
Drawing I, II (Art A, C)	2	2
	20	20

Second Year.

Rhetoric and Composition I, II (English E, F)	3	3
Classics III, IV (English G, H)	2	2
Algebra III, Geometry I, II (Math. C, D, E)	5	5
Plant Relations (Botany C)		2
Civil Government and Administration (Political Sci. A)	2	
Business English (English 11)	3	
Elementary Commercial Law I (Political Science B)		3
Practical Bookkeeping I, II (Bus. Adm. C, D), or Theory and Practice of Stenography (Sten. A, B)	5	5
	20	20

DEGREE COURSE IN COMMERCE.

Freshman Year.

	Semesters,	
	1st.	2nd.
Rhetoric I, II (English 1, 2)	3	3
Advanced Classics and Reading I, II (English 3, 4)	2	2
Commercial Arithmetic (Mathematics 9)	3	
Trigonometry II (Mathematics 2)		3
General Chemistry I, II (Chemistry 1, 2)	4	4
Business English (English 11)	3	
United States History (History 2)		3
Office Facilities and Practice I, II (Bus. Adm. 1, 2)	4	4
Advanced Penmanship I, II (Penmanship 1, 2)	1	1
Library Practice (Library 1)	1	
Hygiene (Physical Education 9)		1
	21	21

Sophomore Year.

General Physics V, VI (Physics 5, 6)	4	4
Modern Language I, II (French, German, or Spanish)	3	3
Elements of Economics (Political Economy 1)	3	
Commercial Geography (Political Economy 2)		3
Advanced Accounting and Business Management (Bus. Adm. 3)		
Corporation Accounting and Auditing (Bus. Adm. 4)		
or Theory and Practice of Stenography I, II (Sten. 1, 2)	6	6
Zoology I, II (Zoology 1, 2)	3	3
Freehand Lettering and Title Design (Art 1)	2	
Typewriting III (Stenography 7)		2
	21	21

Junior Year.

Argumentative Themes, Presentation (Public Speaking 1, 2)	1	1
Modern Language III, IV (French, German, or Spanish)	3	3
Money and Banking (Political Economy 3)	3	
Corporation and Public Finance (Political Economy 4)		3
Business Organization and Management (Bus. Adm. 5)	4	

Theory and Practice of Advertising (Bus. Adm. 6)....		
or Advanced Stenography I, II (Sten. 3, 4)..........	4	4
Electives	5	5
Theoretical Instruction I, II (Military Science 1, 2)...	1	1
	17	17

Senior Year.

Composition of Addresses, Extempore Speaking (Public Speaking 3, 4)............................	2	2
Modern Language V, VI (French, German, or Spanish)	3	3
Advanced Economics (Political Economy 5)..........	3	
History of Commerce I, II (Political Economy 6)....		3
Commercial Law I, II (Political Science 1, 2)........	3	3
Electives	5	5
Theoretical Instruction III, IV (Military Science 3, 4).	1	1
	17	17

COURSE IN PHARMACY.

It is now so generally recognized and so universally admitted as to need but passing comment, that in order to attain to any degree of success in a scientific profession, it is necessary to be thoroughly trained in the science upon which the profession is based.

With reference to the profession of pharmacy, it may truly be said that it is one of applied sciences, since the pharmacist has constant use for a knowledge of the sciences of chemistry, of physics and botany. It is, therefore, of utmost importance to the individual who has decided to enter upon a pharmaceutical career, that he begin properly in the matter of an education. The institution in which the study of the natural sciences is prominently featured is, without doubt, the one best qualified to afford him the training suited to his particular needs. In this connection, attention is directed to colleges of the land-grant, or agricultural type. Financed by state and Federal Government, the material welfare of institutions of this class is assured. With unusual facilities in the way of laboratories and equipment, and with an instructional force selected especially for the purpose, they are prepared to offer exceptional advantages for mental and manual training in those professions having for their foundation a knowledge of the sciences.

In recognition of the fitness of conditions and of an apparent need for such instruction, the Oregon Agricultural College, in 1898, added to its curricula, a Course in Pharmacy, the purpose of which is to afford the young men and women of the State an opportunity of obtaining a thorough training in the theoretical and practical features of this profession.

The course comprehends instruction in class and lecture room, in extensive practice in the laboratory, and excursions afield in botany. The value of laboratory practice is fully appreciated; it is in this connection that facts mentioned in text-book and lecture are brought to the student's notice in a way that the importance is emphasized, the significance demonstrated, and the fact itself fixed in the mind. In the pharmaceutical laboratories, the student becomes experienced in the manufacture of medicinal preparations and in filling prescriptions. In the laboratories of chemistry, of botany, of bacteriology, of physics, and of biology, he gains valuable experience in connection with each of these related sciences. It is expected, and not without reason, that owing to the nature and extent of the instruction given, graduates of this course will be qualified to assume positions of trust and responsibility in the professional world. Not only is this training of benefit to the pharmacist, but it forms an ideal pre-medical course.

The enactment of the Pure Food and Drug Law of 1906 has opened a new and attractive field for those who are proficient in chemical and pharmaceutical knowledge. Laboratories for the examination of food and drug samples are being established in the various large cities of the country by the Federal Government. Positions in these laboratories are, in many instances, held by graduates of pharmacy.

Two courses are offered; one of four years, leading to the degree of Bachelor of Science in Pharmacy. The other is a short course, of two years, for the completion of which a certificate is given.

A clause in the revised pharmacy law of this State, enacted by the Legislature, session of 1907, stipulates that a candidate for registration as a licentiate of pharmacy, before being eligible for examination by the State Board of Pharmacy, must have had four years of practical experience in a store where prescriptions and medicines are dispensed. Three years of such experience are required of the candidate for registered assistant pharmacist. The Oregon Board of Pharmacy, by special resolution, has granted students who complete the four-year course in Pharmacy at this institution, the privilege of taking the senior examination as given by the Board, and to those who complete the two-year course, the privilege of the junior examination, the regulation with reference to store experience being waived.

The Laue Prize. Mr. John M. A. Laue, prominent in business and professional circles of Portland, prompted by the desire to encourage students to strive for a high degree of attainment and efficiency, has very generously established an annual prize of $50, to be divided between the two students in the Pharmacy Course of this institution who shall make the best showing in their work. The prize is so apportioned that $35 is awarded to the one in the four-year course who shall have the highest standing, and $15 to the one of like standing in the two-year course.

DEGREE COURSE IN PHARMACY.

Freshman Year.

	Semesters, 1st.	Semesters, 2nd.
Rhetoric I, II (English 1, 2)	3	3
Advanced Classics and Reading I, II (English 3, 4)	2	2
Principles of Botany I, II (Botany 1, 2)	3	3
Zoology I, II (Zoology 1, 2)	3	3
Latin I, II (Latin 1, 2)	3	3
General Chemistry I, II (Chemistry 1, 2)	4	4
Drawing I, II (Art A, C)	2	2
Library Practice (Library 1)	1	
Hygiene (Physical Education 9)		1
	21	21

Sophomore Year.

American Literature I, II (English 9, 10)	2	2
Argumentative Themes, Presentation (Public Speaking 1, 2)	1	1
Modern Language I, II (French, German, or Spanish)	3	3
Qualitative Analysis (Chemistry 5)	4	
Organic Chemistry (Chemistry 9)		4
Plant Histology (Botany 3)	3	
Morphology and Taxonomy of Seed Plants (Botany 4).		3
Physiology and Hygiene I, II (Zoology 4, 5)	3	3
Office Facilities and Business Practice I, II (Business Administration 1, 2)	4	4
Advanced Penmanship I, II (Penmanship 1, 2)	1	1
	21	21

Junior Year.

Modern Language III, IV (French, German, or Spanish)	3	3
Quantitative Analysis I (Chemistry 7)	3	
Pharmaceutical Analysis (Chemistry 12)		3
General Physics V, VI (Physics 5, 6)	4	4
General Pharmacy (Pharmacy 1)	2	
Nomenclature (Pharmacy 2)	1	
Therapeutics and Doses (Pharmacy 5)	2	
General Pharmacy (Pharmacy 6)		4
Pharmacognosy I, II (Pharmacy 3, 4)	1	2
Theoretical Instruction I, II (Military Science 1, 2)	1	1
	17	17

Senior Year.

Composition of Addresses, Extempore Speaking (Public Speaking 3, 4)	2	2
General Bacteriology (Bacteriology 4)	3	
Practical Bacteriology (Bacteriology 5)		3
General Pharmacy (Pharmacy 7)	2	
Materia Medica and Toxicology I, II (Phar. 8, 9)	3	3
Prescription Practice I, II (Phar. 10, 11)	3	5

Theoretical Instruction (Military Science 3, 4)	1	1
Electives	3	3
	17	17

TRANSITION COURSE IN PHARMACY.

Junior Year.

	Semesters, 1st.	2nd.
Argumentative Themes, Presentation (Public Speaking 1, 2)	1	1
Modern Language I, II (French, German, or Spanish)	3	3
Composition of Public Addresses (English 5)	1	
Argumentative Themes (English 6)		1
Quantitative Analysis I (Chemistry 7)	3	
Pharmaceutical Analysis (Chemistry 12)		3
Physiology and Hygiene (Zoology 4, 5)	3	3
General Pharmacy (Pharmacy 1)	2	
Nomenclature (Pharmacy 2)	1	
Therapeutics and Doses (Pharmacy 5)	2	
General Pharmacy (Pharmacy 6)		4
Pharmacognosy I, II (Pharmacy 3, 4)	1	2
Theoretical Instruction I, II (Military Science 1, 2)	1	1
	17	17

Senior Year.

Composition of Addresses, Extempore Speaking (Public Speaking 3, 4)	2	2
General Bacteriology (Bacteriology 4)	3	
Practical Bacteriology (Bacteriology 5)		3
Quantitative Analysis I (Chemistry 7)	3	
Pharmaceutical Analysis (Chemistry 12)		3
General Pharmacy (Pharmacy 7)	2	
Materia Medica and Toxicology I, II (Phar. 8, 9)	3	3
Prescription Practice I, II (Pharmacy 10, 11)	3	5
Theoretical Instruction III, IV (Military Science 3, 4)	1	1
	17	17

DEPARTMENTS OF INSTRUCTION

AGRONOMY.

Professor Scudder.
Assistant Professor Hyslop.
Mr. Powers.
Mr. Koeber.

Agronomy is the science of the fields and the crops of the elds. Instruction in this science is offered by the department f Agronomy in the following subjects:

(a) Soils; their origin, structure, fertility, cultivation, and imrovement.

(b) Field Crops; their history, growth, culture, improvement nd value.

(c) Farm Mechanics; the structures, machinery, drainage, and rigation of the farm.

(d) Farm Management; the methods, business principles, hisory, and economics of farming.

In every subject, instruction is accomplished equally through lass room, laboratory and field work; theory is checked by ractice. For the latter methods of instruction, the finely equipped boratories of this department, the various soil conditions, nuerous experimental crops, and extensive structures of the Experient Station farm, offer excellent facilities. The large and newly quipped laboratories for the courses in Field Crops and the ourses in Soils, in the new Agronomy building, and for Farm echanics in the new barn, are not excelled by those of any stitution in the country.

The Secondary courses in Agronomy deal only with the practical pplication of the underlying principles of agriculture to specific onditions—aiming to give the less well prepared student as much nformation as possible in a short time concerning those practices ost vital to successful farming—to send him back to the farm better prepared to cope with its problems. These courses serv also to prepare the student for collegiate Agriculture.

The object of the collegiate courses in this department is t give the student such mastery of all the subjects relating to th soil, field crops, farm mechanics, or farm management as will hel prepare him for the highest type of practical farming or for a su cessful career in professional agriculture such as is found in the U S. Department of Agriculture, or in the State Experiment Statior and Agricultural Colleges. So far this department has had mor calls for capable agronomists than it has been able to fill, pos tions paying all the way from $75 to $150 per month.

Agronomy 1, 2, and 3, are prescribed for all collegiate agricu tural students. The succeeding courses are the majors and minor offered to the upper classmen in Agriculture who elect Agronom as their specialty. Majors and minors are then determined upo by conference between the student and the head of the depar ment. Liberal electives in other departments ar permitted wher advisable.

A. **Soils.** A brief history of the origin of soils; the fertilit of soils; the most valuable chemical constituents; their exhaustio and replenishment; the most important physical factors; thei deterioration or improvement. The physical components; thei relative value and amounts in soil mixtures. Practice in judgin the chief soil types of Oregon. The effects upon soils of tillag manuring, crop rotation, drainage and irrigation.

The Secondary course; first year; first semester; one credit one laboratory period.

B. **Crops.** A brief consideration of the adaptability, relativ value, and best methods of growing the chief cereal, grass, legum and succulent crops of Oregon for grain, pasture, meadow, soiling silage or seed purposes. Investigation of the sources of crop see and the importance of seed purity and germinating power, wit methods of testing same. Eradication of the most common wee enemies of the field crops.

The Secondary course; first year; second semester; two credits one recitation; one laboratory period.

C. **Elementary Farm Mechanics.** A study of some of the me chanical principles involved in farm operations and their application in labor saving devices for farm work. The structure and uses of the best types of farm machines. The designing and construction of barns, silos, hog houses, sheep sheds. Fencing problems; the division of fields; the location of farm buildings and lanes.

The Secondary course; second year; second semester; two credits; one recitation; one laboratory period.

1. **Basic Agronomy.** This course is, of necessity, elementary and general in its nature—an introduction to agriculture—seeking to interest the new student in farm life through first knowledge of the fields, the crops, the mechanics of the farm; or in agriculture as a science, through the wide range for scientific study and investigation it offers, the possibilities in the fields still unexplored; or to interest him in agriculture as a business, through its profits as a practice, and its opportunities as a profession. During the semester, instruction is given in the elementary facts concerning the origin and formation of soils; soil moisture, heat and air; common soil processes, physical and chemical; plant foods and soil fertility; tillage, crop rotation and manuring; important soil bacterial action; the benefits derived from drainage and irrigation; common farm machines, their use and care. The course will close with a brief survey of the agriculture of the State. Instruction will be given through lectures and notes, text and recitation, laboratory, and field observations.

Freshman year; first semester; three credits; two recitations; one laboratory period.

2. **Crop Production.** The study of the chief field-crop seeds of Oregon; wheat, barley, oats, corn, vetch, clover, alfalfa, grasses, etc., their vitality, germination, preservation, growth, and reproduction; preliminary judging; seed bed and seeding; climate and soil; culture and rotation; weed enemies, their prevention and eradication; harvesting, marketing, and profits; distribution and value to the State; methods of crop improvement. Class room, laboratory, and field work.

The course in Agriculture; freshman year; second semester; two credits; one recitation; one laboratory period.

3. **Drainage and Irrigation.** The history of drainage and irrigation; road, field, and sanitary drainage on the farm; th different systems of drainage and of irrigation; methods of loca cating, installing, operating, and maintaining drainage and irrig tion conduits; cost, efficency, and profits; the effect on crops ar soils; laws governing. Lectures, notes, readings, and field wor

Sophomore year; second semester; three credits; two recit tions; one laboratory period.

4. **Soil Physics.** Advanced study of the geology of soils-origin, formation, composition, and classification. Soil moistu and fertility, and their conservation. The various physical pr cesses of the soil—surface tension, osmosis, capillarity, diffusio etc. The effects of the various crops and the different metho of culture upon the texture, aeration, temperature, moisture ar plant food supply of the soil, and the resulting alteration in cro producing power. The influence of washing, drainage, and irrig tion upon soils.

Elective; junior year; first semester; three credits; thr recitations.

5. **Soil Physics Laboratory.** Work in the laboratory will co sist of the determination and comparison of such physical prop erties in the various soil types as, specific gravity, water retentio capillarity, organic content, etc.; the effect of mulches, rotation and cropping; soil sampling and judging; the mechanical analys of soils.

Note.—Animal Husbandry and Dairy Husbandry students will b permitted, where it is necessary, to take either the lecture or la oratory course in Soil Physics, separately.

Elective; junior year; two credits; two laboratory periods.

6. **Cereal Crops.** A study of grains with special reference t those of Oregon and the varying conditions of soil and climat under which they are grown; the culture and rotation best adapte to each; the various methods of harvesting and storage; the judg ing of grain; grading for market; markets and uses of each crop improvement of crop seed; plant breeding.

Elective; junior year; first semester; five credits; three recit tions; two laboratory periods.

7. **Forage Crops.** A less technical study of the legumes, grasses, and succulent crops, the course being especially adapted to the needs of the students in Animal and Dairy Husbandry. The adaptability and value of each of the forage plants as pasture, hay, soiling, or silage crops, together with the practical methods of growing each and the planning of rotations that will maintain fertility, will be fully discussed.

Elective; junior year; second semester; two credits; two recitations.

8. **Farm Mechanics.** Field and power machinery. The construction and use of all classes of modern farm machinery; tillage and seeding implements; harvesting, threshing, grinding, cutting, and pumping machinery; farm engines of all kinds. Special attention will be given to the principles involved in the economic operation of engines and power machines.

Elective; junior year; second semester; three credits; three recitations.

9. **Farm Mechanics Laboratory.** The examination, setting up, testing, and field operation of all the more complicated farm machines, such as harvesting and power machines, and engines. Each student will be made capable of locating trouble in a complicated machine or of running an engine properly. Comparative tests of the efficiency and cost of operation of different types of engines and power machinery, as far as the time will permit.

Elective; junior year; two credits; two laboratory periods.

Note.—Animal Husbandry, Dairy Husbandry, and Horticultural students will be permitted, where it is necessary, to take either the lecture or laboratory course in Farm Mechanics, separately.

10. **Farm Structures.** Farm buildings, fences, and roads. The design and construction of farm houses, barns, granaries and silos; their arrangement and cost. The various kinds of fencing; cost, construction and quality. Road building and maintenance and cost of same. The laboratory will include practical work in concrete construction and the drawing of building plans and specifications.

Elective; junior year; three credits; one reciation; two laboratory periods.

11. **Climatology.** Practical meteorology; observing and recor ing local weather; a study of the climate of Oregon and the effe of climate upon agriculture; class room and laboratory work.

Elective; junior year; second semester; one credit; one labor tory period.

12. **Soil Fertility.** The effect of the various crops upon tl fertilit yof the soil. The maintenance or improvement of fertilit by the use of fertilizers and manures. The composition and valu of the different fertilizers and manures. The effect of variou rotations upon fertility. The fertility of the different types c Oregon soils; their plant food requirements and comparative value methods of improvement of each. The effects of different syste of farming. Analysis, field plot, wire basket, and pot cultu investigations.

Elective; senior year; first semester; five credits; three recit tions; two laboratory periods.

13. **Agrostology.** A study of the grasses, legumes, and oth forage crops. Methods of seeding for meadow, pasture, and soilin crops; maintenance of meadows and pastures; harvesting, curin storing, baling, and using the various meadow crops; grazing, sil ing, and soiling. The comparative structure and identification the different forage plants; their adaptability to different cond tions of soil and climate. Examination of commercial seed f viability and purity. The identification of weed seed. The pr duction of forage crop seed.

Elective; senior year; first semester; five credits; three recit tions; two laboratory periods.

14. **Farm Management.** A study of the various systems of e tensive, intensive, and mixed farming, and the conditions und which each prospers or fails; methods of successful farmers; tl application of business methods to farm operations; farm account farm labor; economic management of fields, stock, structure crops, and machines; markets and marketing; relation of farmin to other industries.

Elective; senior year; second semester; five credits; five rec tations.

15. **Advanced Work.** This course embraces all advanced wor

f any kind in any branch of Agronomy that the individual student ishes and is fitted to pursue further than is possible in the ourses offered above. It is especially designed to meet the needs f senior and graduate students in Agronomy, as preparation for ositions as farm managers, or machine experts, or for the Govern-ent, agricultural college, or experiment station service. The ubjects which this course offers for advanced study and investiations are:

a. Soils; mechanical analysis, soil surveying, soil fertility roblems.

The advanced student specializing in soils may study the various oil types of Oregon through mechanical analysis, and other physcal tests; may undertake field work in soil surveying and mapping; r, through wire basket, pot culture, and field plot tests, may etermine the effects of various systems of cropping, or fertilizing, r of soil bacteria, upon soil fertility.

b. Crop Production; special crops, field experimentation, plant reeding.

In this subject a complete study may be made of some special rop in which the student is interested or on which information is acking. Methods of field experimentation may be compared and arried out; or plant breeding theories and their practical use in ommercial seed production may be made the subject of investiation.

c. Farm Mechanics; farm power machinery, harvesting machinry, rural architecture, concrete work, road and fence construction, rainage engineering.

For the student with inclinations toward mechanics or engineerng, a wide field is offered in advance work in testing the efficincy and cost of running various types of farm power machines nd engines; or of becoming an expert on harvesting machinery; r he may specialize in the designing of a complete series of farm uildings; or do a half year's practical work in drainage engineerng, working out a system for some given area.

d. Farm Management; farming systems, irrigation farming, dry nd farming, rural economics.

In this branch of Agronomy there is a rapidly growing demand for men of special knowledge concerning the methods of cr production under the two extremes of soil moisture conditio found in irrigation farming and dry land farming. Special atte tion is given in these two courses to their application to Easte Oregon conditions.

Elective; senior or graduate year; first or second semester, both; one to five credits.

Minor electives in other departments: Animal Husbandry, fi credits; Bacteriology, three credits; Botany, three credits; Eng neering, three credits; Entomology, three credits; Geology, thr credits.

ANIMAL HUSBANDRY.

Professor Withycombe.
Assistant Professor Potter.
Mr. Samson.

The object of the course in Animal Husbandry is to fit th student for the actual rearing of live stock on the farm so that h may raise the highest grade of stock in the most economic manner. The student is thoroughly grounded in the underlyin principles so that he may successfully continue his study after h leaves school, but the practical details are thoroughly discussed an a special effort is made to keep the student in close touch with th financial phases of the live stock industry. Students who mak this work their specialty are not expected to devote their entir time to live stock but are to familiarize themselves with the pr duction of the common farm crops, maintenance of the fertility o the soil, and the handling of farm machinery and like topics so tha when they graduate, they will be equipped for practical farm worl

Scientists and practical farmers are agreed that the fertility o the soil cannot be maintained economically, if at all, without liv stock. The rearing of live stock requires more skill and knowledg than grain or hay farming, and while the profits are much large when the business is properly handled, there is also more dange of a loss due to improper management or ignorance; hence th necessity of a thorough training before embarking in this line of work.

The following courses are offered:

A. **Stock Judging.** I. A study of animal form by score practice and comparative judging. The student is given an understanding of various points to be considered in judging cattle, sheep, swine, and horses. The work consists almost exclusively of actual practice with the animals at the barns.

The Secondary course; first year; first semester; two credits; two laboratory periods.

B. **Veterinary Science.** A study of the treatment and prevention of the common diseases of farm live stock. Special attention is given to sanitation and the prevention of diseases.

The Secondary course; second year; first semester; one credit; one recitation.

C. **Practical Stock Feeding.** A study of the elementary principles of stock feeding. The various feed stuffs obtainable in Oregon are discussed and compared as to their value for the different kinds of stock. Some time is devoted to the different methods of preparing the feed and the various systems of feeding.

The Secondary course; second year; second semester; two credits; two recitations.

1. **Stock Judging.** II. The various types of farm animals are studied by the score card method and by comparative judging. Practically the entire time is devoted to studying the animals at the barns. The student is made familiar with the desirable types of cattle, sheep, swine, and horses.

Freshman year; second semester; two credits; two laboratory periods.

2. **Live Stock Management.** A careful study of the practical details of the care and management of live stock; stabling; grooming; sanitation; practical feeding, and kindred details of live stock farming.

Sophomore year; first semester; three credits; two recitations; one laboratory period.

3. **Breeds of Stock.** I. The study of the history of the various breeds of cattle and sheep, their origin and characteristics. Each

breed is taken up and studied separately from its early history The environment under which they were produced, the origina stock, and the men who were instrumental in establishing th breed are given careful consideration, as well as the present state of the breed and the work of present day breeders. The leadin families or strains and the most prominent animals are discusse in detail. The lecture work is accompanied by comparative judging in which special attention is given to breed type and to th differences in conformation of the various breeds.

Elective; junior year; first semester; four credits; three recitations; one laboratory period. Not given in 1910-11.

4. **Breeds of Stock.** II. The study of the breeds of horses swine, and dairy cattle. A continuation of A. H. 3.

Elective; junior year; second semester; four credits; three recitations; one laboratory period. Not given in 1910-11.

5. **Live Stock Marketing.** The study of the various problems of marketing live stock; preparation of stock for market; shipping; market grades and classes; market terms and reports; together with a detailed study of the leading markets open to farmers of Oregon.

Elective; junior year; first semester; two credits; two recitations.

6. **Range and Herd Management.** A study of the details of management of live stock. Special attention is given the handling of stock in large herds and to the problems of the range.

Elective; junior year; second semester; three credits; two recitations; one laboratory period.

7. **Principles of Breeding.** The study of the principles of breeding as related to the development of our domestic animals. Among the topics discussed are variation, transmission of variations and modifications, fecundity, in-an-in breeding, crossing, and like topics. Some time is devoted to the study of pedigrees and to the methods of registration employed by the various breeds associations.

Prerequisite: At least one semester of Zoology.

Elective; senior year; first semester; five credits; five recitations.

8. **Principles of Stock Feeding.** The study of the chemical and

physiological principles of animal nutrition including digestion, assimilation, metabolism and also the composition of feed stuffs and the function of the various classes of compounds found in feed stuffs in the animal body. Special attention is devoted to the study of nutritive ratios, feeding standards, compounding rations, and the general significance of the chemical composition of the feeds.

Prerequisite: Chemistry 8 and 10.

Elective; senior year; first semester; two credits; two recitations.

9. **Beef Production.** A study of the feeds and methods of feeding adapted to the production of beef. Special attention is given to the results obtained in the tests conducted by the various experiment stations.

Prerequisite: A. H. 8.

Elective; senior year; **first fifth** of the second semester; one credit; five recitations.

10. **Mutton and Wool Production.** A study of feeding for the production of mutton and wool as in A. H. 9.

Prerequisite: A. H. 8.

Elective; senior year; **second fifth** of the second semester; one credit; five recitations.

11. **Pork Production.** A study of the methods of feeding for pork production as in A. H. 9.

Prerequisite: A. H. 8.

Elective; senior year; **third fifth** of the second semester; one credit; five recitations.

12. **Milk Production.** A study of feeding for the production of milk, as in A. H. 9.

Prerequisite: A. H. 8.

Elective; senior year; **fourth fifth** of the second semester; one credit; five recitations.

13. **Horse Feeding.** A study of practical horse feeding, as in A. H. 9.

Prerequisite: A. H. 8.

Elective; senior year; **last fifth** of the second semester; one credit; five recitations.

14. **Research Work.** In this course the student is expected to

select some line for individual investigation either by library methods or otherwise. The object is partly to allow the student to study some particular line in which he is especially interested and partly to give him training in studying out problems for himself as he will have to do after leaving school. This course is open only to those who are taking Animal Husbandry as their major or who have taken practically all of the regular courses in Animal Husbandry.

Elective; senior year; second semester; credits according to arrangement.

15. **Animal Husbandry Literature.** A study is made of the various books, periodicals and bulletins pertaining to Animal Husbandry. The student is made familiar with the leading books and information which he may obtain from those sources. A special study is made of the periodicals dealing with live stock, their standing, influence, and the part of the country and kind of farming to which they are best adapted. Some attention is given to the bulletins of the state stations and of the U. S. Department of Agriculture; methods of obtaining these bulletins and where and how to obtain any desired information. The student cannot be expected to read all the available material along Animal Husbandry lines but rather to become familiar with the various sources of information, so that when any particular question arises he will know at once the books, periodicals, or bulletins that will give him the most authoritative information on that subject.

Elective; senior year; first semester; three credits; three recitations.

16. **Advanced Breed Study.** I. A study is made of the breeds of beef cattle and sheep with special reference to the prominent strains and families, noted animals, and leading breeders of the present day. The distribution, popularity, and general standing of the breeds in Oregon are also discussed. The lecture work is accompanied by practice in judging from the breed type standpoint.

Elective; junior year; first semester; two credits; one recitation; one laboratory period.

17. **Advanced Breed Study.** II. A continuation of Course 16, but with reference to swine, horses, and dairy cattle.

Elective; junior year; second semester; two credits; one recitation; one laboratory period.

18. **Advanced Stock Judging.** This course consists of practical judging of all kinds of stock with an occasional visit to surrounding fairs and stock farms.

Open only to students who have completed all the other courses in judging offered.

Elective; senior year; second semester; two credits; two laboratory periods.

19. **Seminar I.** Semi-monthly meetings are held in which papers on Animal Husbandry subjects are read and discussed. These papers are prepared under the supervision of the department, although considerable latitude is allowed in the selection of subjects and the manner of presentation.

Elective in junior and senior years; first semester; one-half credit.

20. **Seminar II.** This is a continuation of course 19.

Second semester; one-half credit.

DAIRY HUSBANDRY.

Professor Kent.
Mr. Simpson.

It is the purpose of the department of Dairy Husbandry to effect an improvement in the dairy industry, for which a large part of the State is so well fitted. More cows and better ones, as well as more and better dairy products, is the ultimate aim of the instruction and the experimentation carried on by this department.

In order to meet the needs of the industry and the demand for information, the department offers the following courses:

The four-year course, designed to qualify students for agricultural college and experiment station work, for inspectors of dairy products and dairy establishments in city, State, or Government service, or as managers of creameries or large dairy farms;

The six-week course, designed to fit students to become operators of creameries, cheese factories, and dairy farms.

Besides these courses, dairy instruction will form a portion the work offered to students in the Secondary course in Agricu ture, also to students in Domestic Science and Art.

The laboratories for the technical work in dairying are locat on the first floor of the Agricultural Hall, and comprise a ma work-room for butter and cheese making, a milk testing laborator boiler and engine room, cheese-curing and storage rooms, class roo and office. A large variety of cream separators gives the stude an opportunity to judge of the respective merits of the leadi machines of this class now on the market. Churns, Pasteurize testers, and other apparatus, all in practical operation, are at han for purposes of instruction.

The dairy wing of the new college barn has accommodations f thirty cows, being equipped with the Drown iron stall, ceme floors and mangers, and drainage to permit of thorough and rapi cleaning with water when desirable. There are also boiler, storag and separating rooms, comprising an aggregate floor space 16x3 feet.

The dairy herd, which is used for experimental and demonstr tion purposes, consists of typical representative animals of t leading dairy breeds, including the Jersey, Guernsey, Holstei Ayrshire, and the milking type of Shorthorn.

One of the largest commercial creameries in the State is locate at Corvallis, an opportunity thus being presented for the stud of manufacturing problems as they exist under every-day creamer conditions.

The following courses are offered:

A. **Farm Dairying I.** A general study of the secretion, comp sition, and adulteration of milk; methods of separation, determin tion of fat, ripening of cream, churning, and preparing butter f the market.

The Secondary course; first year; second semester; two credit one recitation; one laboratory period.

B. **Farm Dairying II.** Additional work along lines indicate in Course A; farm cheese making; operation of milking machine and other dairy machinery; herd records.

The Secondary course; second year; first semester; two credits; one recitation; one laboratory period.

1. **Milk and Cream Testing.** A study of the Babcock test as applied to milk and cream, and other milk products; the use of Farrington's and Mann's acidity tests; fermentation tests; use of the lactometer; composite sampling and testing.

Sophomore year; first semester; two credits; one recitation; one aboratory period.

2. **Advanced Butter Making.** A study of the physical and chemical properties, composition and separation of milk; effect of different degrees of acidity of the cream upon the resulting butter; the principles of churning, packing, and marketing butter; and the operation of churns and separators.

Required of students electing Dairy Husbandry as a major; unior year; first semester; five credits; three recitations; two aboratory periods.

Prerequisites: Course 1; Chemistry 10, 11.

3. **Cheese Making.** A study of the importance of the quality and composition of milk in the manufacture of Cheddar cheese; he principles involved in setting, cutting, heating, milling, etc.; pecial shapes and sizes; the construction and ventilation of curing ooms.

Required of students electing Dairy Husbandry as a major; unior year; second semester; three credits; two recitations; one aboratory period.

Prerequisites: Course 1; Chemistry 10, 11.

4. **Research Work.** A study of various authorities on dairying, ogether with the work of Experiment Stations along the same line. Some original investigation will also be included in this course.

Required of students electing Dairy Husbandry as a major; enior year; first semester; two credits.

Prerequisites: Courses 1, 2; Chemistry 10, 11.

5. **Factory Management.** Consists of location, organization, onstruction, drainage, and ventilation of creameries and cheese actories; creamery refrigeration, and general management. The bject of this course is to fit the student to superintend or manage arge factories or other dairy establishments.

Required of students electing Dairy Husbandry as a majo senior year; first semester; three credits; recitations, and inspe tion of dairy establishments.

Prerequisites: Same as for course 4.

6. **Technology of Milk.** A study of the utilization of milk an its products, such as the preparation of condensed, certified, mod fied, and hygienic milk, milk sugar, casein; and the food value o milk and its products.

Required of students electing Dairy Husbandry as a majo senior year; second semester; two credits; two recitations.

Prerequisites: Courses 1, 2; Chemistry 10, 11.

7. **Dairy Herd Management.** Best methods of feeding for mil production; principles governing the construction of stables, stall and ties; systems of keeping, feeding, breeding, and milk produc tion records; manner of disposal of milk produced; rearing th dairy calf; selection and care of bulls.

Elective for students in Dairy Husbandry, Animal Husbandry and Agronomy; senior year; second semester; two credits; tw recitations.

8. **Preparation of Ice Cream and Ices.** A study of the prep aration of ice cream, sherbets, and ices, made on a private o commercial scale.

Elective; senior year; second semester; one credit; recitation and laboratory.

Prerequisite: Course 1.

9. **Thesis.** Original work on some dairy subject may be worked out in co-operation with the departments of Chemistry, Bacteri ology, or Animal Husbandry. Students should consult the head of the Dairy department concerning thesis subject not later than the beginning of their senior year.

Required of students electing Dairy Husbandry as a major; senior year; second semester; two credits.

10. **Home Dairying.** A study of the secretion, composition and characteristics of milk; methods of separation; care of milk and cream; preparation of ice cream and ices.

Elective in the course in Domestic Science and Art; second semester; two credits; recitations and laboratory.

Dairy Husbandry students will be required to take laboratory work in Agricultural Chemistry, second semester, junior year, said subject being allowed on credits for major study. It is recommended that such students carry this subject throughout the junior year.

11. **Short Course.** Students passing the work required in the six-week course will receive a Dairy Certificate after one season's subsequent employment in a creamery or cheese factory, provided their monthly reports to the Dairy Department are made as required, and that the condition of the factory upon personal inspection by a representative of the department, is found in a satisfactory condition. (See Winter Courses.)

HORTICULTURE.

Professor Lewis.
Assistant Professor Cole.
Assistant Professor Peck.
Mr. Bouquet.
Mr. Kraus.
Mr. Rees.
Mr. Sprague.
Mr. Gilkey.

The scope of the work in Horticulture is very broad, giving instruction in Pomology, Olericulture, Floriculture, Landscape Gardening, and School Gardening. In these courses the student is first thoroughly grounded in the fundamentals and is then allowed to specialize as he may desire. Thus, he may fit himself for station or Government work, or enter the many lines in business open to him, such as fruit growing, truck gardening, floriculture, or landscape gardening, for in all these lines are spelndid opportunities throughout the Pacific Northwest. At the present time there are openings for young men to become managers of orchards or to develop fruit lands for outside investors; those having a taste for teaching, can find a broad field in college or rural work or as supervisors of horticulture. The required work for students electing Horticulture covers a wide range, giving the student a thorough training not only in plant propagation and the general principles of orchard management and vegetable growing, but in floriculture and landscape gardening as well, thus broadening his views and interesting him in the aesthetic and all that pertains to more beautiful surroundings.

The courses consist of lectures, reference readings, field exercises, and laboratory work. Much stress is placed upon the practical phases of all the work. In all courses, horticultural truths are illustrated by practice whenever possible. Students are given field and laboratory exercises in all such phases as planting, seeding, budding, grafting, cultivating, thinning, pruning, harvesting, and packing.

Well equipped laboratories and class rooms, orchards containing many varieties of fruit, vegetable gardens, a large campus well supplied with ornamental shrubbery, forcing-houses, and a good reference library, are some of the features enabling the department to offer thorough courses.

The following courses are offered:

A. **Elementary Orchard Practice.** A course dealing with the first principles of fruit growing, in which the practical phases are emphasized, stress being laid on such phases of orcharding as harvesting, packing, pruning, spraying, establishing of orchards, and the essentials of small fruit culture.

The Secondary course; first year; first semester; two credits; one recitation; one laboratory period.

B. **Elementary Plant Propagation and Vegetable Gardening.** In this course the requirements of the Secondary student are kept in mind, the work leading up to more advanced courses in the freshman and sophomore years. The propagation of the common plants used in horticulture is studied; and practical laboratory exercises are given in the planting of seed, making of cuttings, and the ordinary methods of budding and grafting. The last part of the semester is devoted to a study of the first principles of vegetable gardening.

The Secondary course; first year; second semester; two credits; one laboratory period.

1. **Plant Propagation,** consists of a very thorough study of the propagation of plants used in horticulture, including a study of soils used in nursery and seed bed; seeding and transplanting; multiplying of plants by separation and division, soft and hard wood cuttings, layerings, and many forms of budding and grafting. The greenhouses, laboratories, orchards, and campus offer splendid opportunities and furnish abundant material for practical work.

Freshman year; second semester; two credits; one recitation; one laboratory period.

2. **Orchard and Garden Practice.** Problems concerning the home orchard and garden are dealt with in this course, the aim being to give those students who cannot further pursue a horticultural course, the necessary training to develop ideal home orchards and gardens; at the same time the work is fundamental for students desiring to pursue horticultural studies further. The common orchard and garden problems, such as selecting a site, setting and cultivating the orchard, pruning, spraying, and choosing varieties, are considered.

Sophomore year; first semester; three credits; two recitations; one laboratory period.

6. **Floriculture.** An elementary course in the cultivation of greenhouse and home plants and of the common annuals and perennials used in outdoor work. The course is designed to broaden the views of those students who are unable to take advanced courses in Floriculture, and to make them more useful citizens.

Required of Agricultural juniors electing Horticulture as a major; first semester; two credits; one recitation; one laboratory period.

10. **Landscape Gardening.** All students should be interested in everything that pertains to decoration of the home, the improvement of school grounds, the beautifying of streets, and the establishment of recreation grounds and parks. In this course the general principles of landscape gardening are so treated as to apply to the upbuilding of the aesthetic in every-day life.

Required of Agricultural juniors electing Horticulture as a major; second semester; two credits; one recitation; one laboratory period.

POMOLOGY.

3. **Practical Pomology.** Especially offered for those students desiring training in commercial orcharding; deals largely with problems connected with the growing and handling of our leading fruits. Such problems as choice of soil, cultivation, irrigation, use of cover crops, thinning, proper varieties and best methods of orchard management will be thoroughly studied. This is purely a lecture course, the laboratory work being offered in courses 4 and 5.

Elective; junior year; first semester; three credits, three recitations.

4. **Orchard Practice I.** A Saturday morning course, dealing only with the practical phases of orchard management. The various orchard problems, such as harvesting, packing, pruning, and the handling of small fruits, are taken up according to season. Every student beginning this work is required to become familiar with fruit packing to the extent that he can put up a first-class box of fruit. Students especially proficient will be allowed to take up outside work for remuneration under departmental supervision. This course is open only to juniors and seniors electing Horticulture as a major.

Elective; junor year; first semester; two credits; two laboratory periods.

5. **Orchard Practice II.** This is a continuation of course 4.

Elective; junior and senior years; second semester; two credits; two laboratory periods.

7. **Grape Growing.** A special course in Viticulture, devoted to the best methods of growing, harvesting, and packing the American and European types of grapes. Such phases as exposure, elevation, soils, use of resistant stock, pruning, harvesting, packing, shipping, and storing are included. The manufacture of by-products will also be treated.

Elective; junior year; first semester; two credits; two recitations.

8. **Small Fruit Culture.** In this course a study is made of the problems concerned with the growing and marketing of such fruits as the strawberry, currant, gooseberry, raspberry, blackberry, Loganberry, and cranberry. A large collection of small fruits in the college orchard aids materially in the study.

Elective; junior year; second semester; three credits; three recitations.

9. **Nut Culture.** Nut culture is becoming a very important branch of Horticulture. In this course a special study will be made of the culture of such nuts as the walnut, filbert, almond, pecan, and the peanut. Instruction is very largely by lectures on the special adaptability of the Pacific Coast to nut culture. Laboratory periods will be given on the most successful methods of grafting nuts.

Elective; junior year; second semester; two credits; two recitations.

11. **Systematic Pomology.** The description, nomenclature, and classification of native and sub-tropical fruits and nuts is studied. In addition, training is given in judging and displaying fruits. Special stress will be laid on the variation of fruits, caused by soil, elevation, etc. For this study fruits will be collected from the various parts of the State.

Elective; senior year; first semester; two credits; one recitation; one laboratory period.

12. **Commercial Pomology.** This course deals with the problems of marketing fruits, methods of packing, transportation, and storage, the building of packing and storage houses. A study of associations as a factor in the handling of fruit, of market requirements, and of the handling of by-products, makes this course decidedly valuable.

Elective; senior year; first semester; two credits; two recitations.

13. **Seminar I.** This is a course especially arranged for senior and graduate students in Horticulture. A study is made of some of the advanced problems. Articles from the leading magazines on horticultural subjects, also station and Government publications are reviewed. A course of lectures and class drill is given in outlining and conducting experiments and investigations.

Required of Agricultural seniors and advanced students having their major in Horticulture; first semester; one credit.

14. **Seminar II.** Required of Agricultural seniors and advanced students having their major in Horticulture.

Senior year; second semester; one credit.

15. **History and Literature of Horticulture.** A study is made of the literature and history of Horticulture from the time of the Egyptians to modern times.

Elective; senior year; first semester; two credits; two recitations.

16. **Plant Breeding.** This course embraces a study of the theories as related to plant breeding, and their application to the practical aspects of the work, such as cultivation, selection, acclimatization, hybridizing, and pollination. Lectures, reference reading, and practical problems given in laboratory and field. Juniors electing this course begin orchard and garden investigation and plant breeding that can be continued during the senior year.

Elective; junior and senior years; second semester; three credits; two recitations; one laboratory period.

17. **Sub-tropical Pomology.** A study of the culture of such sub-tropical fruits as oranges, figs, and olives.

Elective; senior year; second semester; two credits; two recitations.

32. **Advanced Plant Breeding.** Largely a laboratory course in greenhouses, orchards, and gardens. Open only to students who have completed Horticulture 16. Practical problems of plant breeding studied in course 16 will be continued in this course.

Senior year; second semester; three credits; one recitation; two laboratory periods.

33. **Advanced Pomology.** This is in the nature of a finishing course in Pomology. It will include a series of examinations covering the subject of Pomology to test the student's knowledge of this subject. A series of lectures dealing with advanced problems concerned with such subjects as fruit soils, pruning, orchard fertility, pollination, irrigation, and a review of the past season's market reports and the lessons they teach; the latest development of Horticulture as shown in bulletins, reports, etc. This course

will include many discussions on vital topics concerning Horticulture.

Elective; senior year; second semester; three credits; three recitations.

VEGETABLE GARDENING.

Students taking their major in this course are required to take Horticulture 6, 10, 19.

18. **Principles of Vegetable Gardening.** In this course a study is made of the history and the botanical relationship of vegetables, as well as the best methods of growing them, including such phases as location, soils, cultivation, and forcing of common vegetables. Lectures, supplemented by exercises in field and laboratory.

Elective; junior year; second semester; three credits; two recitations; one laboratory period.

20. **Forcing Vegetables.** A course dealing with the problems connected with the forcing of such vegetables as lettuce, cucumbers, tomatoes, rhubarb, and melons, in cold frames, hot-beds, and greenhouses. Lectures and exercises in the greenhouses.

Elective; senior year; second semester; two credits; one recitation; one laboratory period.

21. **Systematic Olericulture.** Description, nomenclature, and classification of vegetables. Exercises are given in displaying and judging vegetables.

Elective; senior year; first semester; one credit; one laboratory period.

22. **Truck Gardening.** Only the purely commercial aspects of vegetable gardening are offered in this course. Such phases as capital, labor, rotation, tools, harvesting, and storing, will be considered, as well as other problems involved in the growing of vegetables on an extensive scale for market or cannery. Attention is also paid to a study of vegetable markets and methods of marketing.

Elective; senior year; first semester; three credits; two recitations; one laboratory period.

34. **Commercial Truck Gardening.** A continuation of course 22.

Elective; senior year; three credits; two recitations; one laboratory period.

35. **Vegetable Gardening Soils.** This work deals with a study of the types of market gardening and trucking soils, their adaptability to various vegetables, manner of handling, fertilizing, etc. Attention is paid to the manner of making and caring for artificial soils and composts.

Elective; junior year; first half second semester; one credit; one recitation; one laboratory period.

36. **Vegetable Fertilization.** In this course a study is made of the methods of fertilizing vegetables. The value of the various manures for gardening purposes is considered, and special attention paid to the use of commercial fertilizers on the market garden and truck farm. Lectures and exercises in the selection of materials, compounding formulas, amounts, mixing, and application in the field.

Elective; junior year; second half second semester; one credit; one recitation; one laboratory period.

LANDSCAPE GARDENING.

Students taking their major in Landscape Gardening are required to take Horticulture 6, 10, History of Architecture, Plain Surveying 1, Topographical Surveying 5, Mechanical Drawing 1, and Drawing 1.

23. **Annuals and Perennials.** A study of the culture and value of the hardy annuals and herbaceous perennials, and their use in Floriculture. Horticulture 1 is a prerequisite of this course required of those taking Landscape Gardening as a major.

Elective; junior year; first semester; three credits; one recitation; two laboratory periods.

25. **Plant Materials.** A course of study covering the use of trees and shrubs in Landscape Design. This course is also a continuation of course 23. All landscape gardeners should become thoroughly familiar with plants in both active and dormant conditions; and this course, given in the fall and winter, offers exceptional opportunities for studies along this line.

Elective; senior year; first semester; two credits; two laboratory periods.

26. **Theory and Design I.** This course deals with the technical and professional side of landscape gardening as related to the establishment and improvement of private estates, public grounds, parks, and cemeteries. The lectures given deal with the principles of landscape as applied to actual problems. Field exercises and excursions are conducted for illustrating the work. Horticulture 1, 10, 23, History of Architecture, Drawing 1, Mechanical Drawing 1, are prerequisites of this course.

Elective; senior year; first semester; three credits; one recitation; two laboratory periods.

27. **Theory and Design II.** This is a continuation of course 26.

Elective; senior year; second semester; two credits; one recitation; two laboratory periods.

28. **Field Practice in Landscape Gardening.** This course includes the application of the general principles of theory and design to practical problems in the field. Plain Surveying and Topographical Surveying 5, are prerequisites of this course.

Elective; senior year; second semester; two credits; two laboratory periods.

FLORICULTURE.

Students taking their major in Floriculture are required to take Horticulture 6, 10.

19. **Greenhouse Construction.** A course especially adapted for students specializing in Floriculture and Truck Gardening. The problems connected with the building of greenhouses, hot-beds, and cold frames, are dealt with; also, selection of materials; the various systems of heating and ventilating, and the value of the various types of buildings. Lectures and laboratory exercises in greenhouse and drafting room are conducted.

Elective; junior year; second semester; three credits; one recitation; two laboratory periods.

24. **Forcing Flowers.** In this course are studied the propagation, and problems of culture, such as soils, ventilation, and heat, connected with the forcing of plants used in the florist's trade. Horticulture 19 is a prerequisite of this course.

Elective; senior year; first semester; three credits; one rec tation; two laboratory periods.

37. This is a continuation of Horticulture 24.

Elective; senior year; second semester; three credits; one rec tation; two laboratory periods.

Special work can be arranged for students taking their majo in Horticulture.

29. **Floriculture.** Instruction is given in various subjects as proper soils, planting of seed, transplanting, making of cutting cultivation, principles of heating and ventilation, control of insec pests and diseases, connected with the cultivation of the commo household and dooryard flowers. In addition, such problems a the grouping and arranging of flowers, so as to obtain the bes color harmonies and most pleasing effects while growing, as wel as for decoration purposes, are included. The lectures are supple mented by reference readings and laboratory periods in greenhous and garden.

Course in Domestic Science and Art; junior year; first semester two credits; one recitation; one laboratory period.

30. **Landscape Gardening.** The general principles of Landscape Gardening are taught, the aim being to give the student sufficient foundation to understand landscape gardening as applied to home decoration, to interest the student in the home beautiful, the improvement of our public school grounds, and city and village streets. A study is made of photographs, and famous landscape paintings, showing good taste and design in various phases of landscape gardening. Lectures and reference readings are supplemented by field exercises.

Course in Domestic Science and Art; second semester; two credits; one recitation; one laboratory period.

31. **Vegetable Gardening and Small Fruit Culture.** In this course such problems as care of soil, seeding, rotation, fertilizing, and the selection of the best varieties of vegetables and small fruits for use in the home garden are considered. Lectures, laboratory and fitld exercises.

Course in Domestic Science and Art; second semester; three credits; two recitations; one laboratory period.

POULTRY HUSBANDRY.

Professor Dryden.
Mr. Lunn.

In recognition of the importance of the poultry industry and to meet the demands of young men who aim to give special attention to this industry after leaving college, a department of Poultry Husbandry was established. Poultry-keeping is a part of every well regulated system of diversified farming and at the same time offers opportunities for profit-making as a special business. The plant at the College gives exceptional opportunities for a study of the practical as well as the theoretical side of the poultry industry.

1. **Poultry Husbandry I.** This course includes a study of breeds of domestic poultry, their history and classification. The laying and market qualities of different breeds will be emphasized. The laboratory work of this course will consist of feeding and preparing fowls for market; killing, dressing, packing, and marketing the finished product; and judging practice with utility breeds will be given.

Elective; first semester; four credits; two recitations; two laboratory periods.

2. **Poultry Husbandry II.** In this course the housing of poultry will be discussed; plans of different types of houses will be studied. It will also include a study of poultry foods and feeding with reference to egg production and meat production. Incubation, natural and artificial, will be treated. Practice will be given in planning and building poultry houses and appliances. The student will have practice in operating incubators and brooders. He will have charge of a pen of fowls, for which he will keep all necessary records. Practical work will also be given bearing upon the management of the poultry plant. By arrangement, the student may be given work in planning and conducting experiments. A study of the principles of feeding will be taken up in the class room and the students will be given practice in preparing rations in the laboratory.

Elective; second semester; four credits; two recitations; two laboratory periods. Prerequisite: Poultry Husbandry I.

VETERINARY SCIENCE.

Dr. Morel.

The design of this department is to establish a high grade course of veterinary medicine for Agricultural students. The curriculum of instruction is based upon the rules and regulations of the United States Department of Agriculture.

The object of the course is to enable the student to prevent disease, diagnose existing pathological conditions, arrest outbreaks of contagious and infectious diseases among domestic animals, give medical attention in emergency cases, and take care of the sick.

The course is given during the junior and senior years. Comparative Anatomy and Veterinary Physiology—the fundamental branches of medicine—are taught during the junior year; Comparative Medicine, Surgery, Obstetrics, Pathology and Materia Medica will be given in the senior year. The students of this department will be expected to be present at all the clinics,—medical and surgical—and will have an opportunity to diagnose various diseases and assist in the surgical operations. Special attention will be given to lameness and obstetrics, and the students will be called upon to perform obstetrical operations under the supervision of the Veterinary Surgeon in charge.

1. **Comparative Anatomy.** Anatomy is taught in the most practical manner possible. The lectures are illustrated by fresh dissections, models, plates, blackboard drawings, etc. Anatomy, being the foundation of all medical knowledge, is fully explained in its relation to medicine and surgery. The course includes lectures, recitations, quizzes, and dissecting.

Junior year; first semester; three credits; three recitations.

2. **Veterinary Physiology.** The subjects of principles of nutrition, hygiene and animal locomotion are covered carefully. The work in this branch consists in a thorough study of those fundamental principles of general physiology.

Junior year; second semester; three credits; three recitations.

3. **Principles and Practice of Comparative Medicine.** This

course comprises the control of infectious diseases, diagnosis, clinics, preventive medicine.

Senior year; first semester; three credits; three recitations.

4. **Surgery.** This course includes lectures on diagnosis, clinics, surgical restraint, soundness, lameness, shoeing, dentistry and obstetrics.

Senior year; second semester; three credits; three recitations.

5. **Materia Medica.** This is a synopsis of Veterinary Materia Medica; toxicology and therapeutics will be taught. Special attention will be given to the most common drugs in use, poisons and antidotes, hygienic and prophylactic therapeutics.

Elective.

6. **Meat Inspection.** A short course in meat inspection will be given to students who desire to pursue this study.

Elective.

FORESTRY.

Professor Peavy.
Mr. ————.

The aim of the College in establishing a course in Forestry was principally to train young men in that profession, adapting the instruction as far as practicable to the solution of the peculiar forestry problems existing in our State and in the Northwest generally. It is realized fully that European forestry methods are not advisable at the present stage of economic development in this region. Practices in vogue abroad will be examined only as they apply to the fundamental principles of forestry. At the same time it is being made very clear that closer utilization, through the application of scientific methods, both in logging and in milling, is proftable business. Timber owners are becoming convinced that prospective high prices of lumber warrant them in so cutting their holdings as to conserve the young stuff, too small to mill with profit now, for a future harvest.

This indicates, in part, the field for the forester in this region. It is as certain as the law of supply and demand that, with the advancing value of timber, the call for trained men to manage forest properties will increase. Railroads and other large corporate owners of timbered lands are employing professional foresters to administer their holdings. The Federal Forest Service is rapidly raising the professional standard of its field force and, through the natural elimination of unprepared men and the inevitable increase in numbers which efficiency in administration demands, for years to come, will afford employment for a large number of trained men.

The College is located in the heart of a timbered region, offering exceptional opportunities to the forestry student to study conditions on the ground. Virgin forests and second growth stands are easily accessible. Logging operations can readily be reached from Corvallis, while two mills in the city offer an opportunity for studying milling methods. Wood distillation plants, creosote works and factories for the production of finished wood products can be reached in a few hours' travel. The City Water Company of Corvallis has placed an eighty acre tract of forest land at the disposal of the College, for the demonstration of scientific forestry methods.

All students registered in the department of Forestry are required to participate in the activities of the "Forest Club." This organization meets twice each month and has for its purpose the discussion of current forestry literature, legislation, and all other matters pertaining to the progress of the forestry movement.

A. **Elementary Forestry I.** Covering in an elementary way the fundamental principles of forestry; the forest as a resource; the influence of a forest cover on soil and climate and stream flow; the aesthetic value of the forest; an elementary discussion of the development of forestry in Europe; the forestry movement in the United States.

The Secondary course; first year; first semester; three credits; three recitations.

B. **Elementary Forestry II.** A continuation of course A.

The Secondary course; first year; second semester; three credits; three recitations.

C. **Elementary Silviculture I.** The conditions favoring forest growth; the reproduction of the forest naturally and artificially; the collection of forest tree seeds; seed sowing; seed storage; general nursery practice; field planting. The natural extension of the forest.

The Secondary course; second year; first semester; two credits; two recitations.

D. **Elementary Silviculture II.** A continuation of course C.

The Secondary course; second year; second semester; two credits; two recitations.

1. **General Forestry I.** A study of economic causes leading to the development of scientific forestry in Europe. Conditions in the United States pointing to the necessity for the application of improved methods; the natural forest; the forest improved by man; the national, state and private forests; the economic importance of forestry with special reference to American conditions.

Freshman year; first semester; three credits; three recitations.

2. **General Forestry II.** A continuation of course I.

Freshman year; second semester; three credits; three recitations.

3. **Silviculture I.** Description of the forest; the soil, climate and other factors of the site; factors governing forest growth and distribution; the influence of the forest on stream flow, climate and soil; the economic loss from erosion; the life history of a tree and of forest types; artificial and natural regeneration; seed collection; seed testing; nursing practice; seed storage; forest planting; the application of silvicultural methods to the growing crop.

Sophomore year; first semester; three credits; two recitations; one laboratory period.

4. **Silviculture II.** A continuation of course 3.

Sophomore year; second semester; four credits; two recitations; two laboratory periods.

5. **Mensuration and Survey I.** The determination of the contents of logs in cubic feet and in board measure; the study of log rules; methods of scaling timber; methods of computing the contents of entire felled trees; height measurements; volume tables; form factors; estimating the contents of entire stands; the growth rate of individual trees and of the forest; yield tables. Each student will be required to estimate, map and describe a given stand of timber.

Junior year; first semester; three credits; two recitations; one laboratory period.

6. **Mensuration and Survey II.** A continuation of course 5.

Junior year; second semester; three credits; one recitation; two laboratory periods.

7. **Management I.** The business of administering the forest; the policy of Federal, State and private owners; a review of forest mensuration, including methods of determining the volume of single trees and of stands; the costs of forest produts; the present value of the future crop; the value of young growth; the preparation of a working plan for a given area of timbered land, including a valuation survey, map, and forest description; the protection of the forest from fire, insect attacks and other injuries; the organization of the forest force for effective work.

Senior year; first semester; five credits; three recitations; two laboratory periods.

8. **Management II.** A continuation of course 7.

Senior year; second semester; five credits; three recitations; two boratory periods.

9. **Utilization.** The use of the secondary wood products; the iemical products of wood; wood distillation; the utilization of aste; the tanbark industry; the manufacture of cooperage stock, ingles, lath, matches, veneer, shipping crates, charcoal, etc.

Senior year; first semester; two credits; one recitation; one boratory period.

10. **Lumbering.** The history of the lumber industry, including study of the methods used in different regions; special attention lumbering operations in the Northwest; the transportation of gs from the woods to the mill; the use of steam machinery in idding and hauling; driving; the methods of milling; seasoning id grading; the costs of logging and milling with reference to me definite operation. During the course each student will be quired to prepare a thesis from data collected by personal study some extensive logging and milling business.

Senior year; second semester; five credits; two recitations; three boratory periods.

11. **Dendrology.** Classification and identification of forest ees; silvic characteristics of commercial species; forest regions the United States; relative importance of timber species; life story and requirements of trees.

Senior year; first semester; three credits; one recitation; two boratory periods.

12. **Wood Technology.** Microscopic structure of wood; defects ie to knots, decay, and checks; structural changes due to season- g; identification and classification of commercial woods; experi- ental study of the strength of timbers; the relation between oisture content and strength; chemical properties of wood.

Senior year; second semester; three credits; one recitation; two boratory periods.

13. **Wood Preservation.** Primary causes of decay; the relation moisture content to durability; surface application of preserva- ons; the preservation of wood through impregnation with pre- rvatives; the open tank method of treating timbers; economic fects.

Senior year; first semester; two credits; one recitation; o laboratory period.

14. **National Forest Administration.** A study of the metho of administering the Federal Forests; the organization of t administration force on the forest; fire patrol; timber sales; gra ing; the forest homestead law; special uses of forest resource permanent improvements.

Senior year; second semester; three credits; three recitatio

15. **Camping and Packing.** Correct methods of managing camp; camp fires; camp cooking; field equipment; care of sadd and pack stock; packing.

Senior year; no credit; given as opportunity permits.

16. **Field Work.** Between the junior and senior years ea student will be required to devote eight weeks to actual work the field. This period will be given to the practical work requir of foresters, as estimating, mapping and preparing forest descri tions; rough topographic and plane surveying; examination logging problems; study of site conditions in relation to fore types; camping and packing.

An equivalent amount of field work may be offered as a su stitute for this course. Four credits.

SCHOOL OF DOMESTIC SCIENCE AND ART.

Professor Greer.
Assistant Professor Van Liew.
Miss Van Deusen.
Miss Tobin.
Miss Ewing.

SECONDARY COURSE.

Domestic Science.

A. **Plain Cookery I.** Cooking of types of all common foods with thorough study of the underlying principles involved; vegetables with special consideration of the best methods by which flavor and attractive appearance may be maintained; cooking of cereals, serving of uncooked cereals; eggs in various ways, scrambled, poached, boiled, and in omelets, plain, meat and jelly; the use of eggs in desserts, salads, sandwiches, with a consideration of their dietetic value; simple flour mixtures, such as muffins, popovers, biscuits, and pancakes. Lessons in the care of the kitchen, including cleaning of utensils, stoves, sinks and refrigerators will be given and their proper care emphasized at all times.

First year; first semester; three credits; one recitation; two laboratory periods.

B. **Plain Cookery II.** A continuation of course A. Meats, the best method of cooking to develop flavor; value of broiling, boiling and roasting. Lessons in the making of soups, plain cake and bread will also be given during this term.

First year; second semester; three credits; one recitation; two laboratory periods.

C. **Cookery, Serving, Simple Dietetics I.** An elaboration of courses A, B, with attention given to good combinations in serving such as fish and puddings with their appropriate sauces; which vegetables to serve with certain meats, such as peas with lamb, apples with pork, and rice with chicken for palatability and proper proportion of food principles. Practice in the cooking and serving of meals for home occasions will give an opportunity for the selection of menus in which will be considered the best combination of soups, meats, salads and desserts.

Second year; first semester; two credits; two laboratory periods.

D. **Cookery, Serving, Simple Dietetics II.** A continuation of course C, with attention to the preparation of refreshments for special occasions, such as luncheons, receptions, and dances. The care of the dining room and its appointments, and table decorations, will be studied. The preparation and serving of food for common disorders in digestion; bran and gluten biscuits, broths, gruels, junkets, custards, egg and milk combinations will receive consideration.

Second year; second semester; two credits; two laboratory periods.

E. **Laundering I.** This course deals with the principles of laundry work through practical application. The subjects considered are: treatment of hard water, choice of starch, bluing and soap, laundering of bed, body, and table linen.

Second year; first semester; one credit; one laboratory period.

F. **Laundering II. Laundering and Household Economics.** Pertains to dresses, waists, skirts, collars and cuffs, silks and flannels, removal of stains, cleaning of laces and colored embroideries. Soaps and other laundry reagents will be made in class. Lectures on equipment and care of house laundry will be given. Practical cleaning and pressing of garments and practical cleaning and care of house furnishings will be required of the students.

Second year; second semester; one credit; one laboratory period.

Domestic Art.

A. **Plain Sewing I.** Both hand and machine sewing, to give the student a knowledge of the principles of construction and execution; training in neatness, accuracy, and economy of material. Hemstitching of towels and running will require of the student the development of good judgment and the power of producing regularity in stitches; hemming of towels and napkins, making of laundry bags and the apron, collar, cuffs and cap for cookery costume will give practice in simple sewing and prepare the student for more difficult work.

First year; first semester; two credits; two laboratory periods.

B. **Plain Sewing II.** Continuation of course A. The articles used in hand sewing and some simple embroidery stitches will be taught on such articles as corset covers, ties, collars, belts. For practice in machine sewing and construction, simple undergarments and dressing jackets or kimonos will be made.

First year; second semester; two credits; two laboratory periods.

C. **Sewing Simple Dresses and Millinery I.** This course will require of the student more original and individual work, greater power of execution, ability to adapt principles already learned to new problems. Each student will make an unlined dress for school or evening wear, also an attractive hat suitable to wear with the dress made in class or one that will meet her own immediate need.

Second year; first semester; three credits; three laboratory periods.

Prerequisites: Courses A and B.

D. **Sewing, Simple Dresses and Millinery II.** Continuation of course C. Practice in drafting skirt, waist and sleeves, making of a more elaborate dress and hat. A variety of summer hats will be made by the class to show the use of different materials and the styles appropriate to the occasions for which they are planned.

Second year; second semester; three credits; three laboratory periods.

DEGREE COURSES.

Domestic Science.

1. **Science of Cookery I.** The cooking of simple foods such as vegetables, cereals, flour mixtures, eggs, meats, and fish will be supplemented by class discussion of methods and results. The reading of books and bulletins, the study of chemical and physical phenomena occurring in cooking. The care of food materials, such as milk, meat, fish, eggs and vegetables will be discussed. Practical methods of cleaning the kitchen and its furnishings, the refrigerator, stove, and utensils. This course will be adapted to the needs of the student, depending upon whether or not she has had a previous course in cookery.

Freshman year; first semester; three credits; one recitation; two laboratory periods.

2. **Science of Cookery II.** A continuation of course 1 for those students who have had only one semester's work in cookery.

Freshman year; second semester; three credits; one recitation; two laboratory periods.

3. **Simple Dietetics.** Comparison of food requirements of plant and animal life; study of composition of foods with relation to body, and elements necessary for work and repair; study of balanced dietary; essentials of a good menu, combination of foods for single meals, meals for one day and for one week.

Freshman year; second semester; three credits; two recitations; one laboratory period.

Prerequisite: Domestic Science A, B, and 1, or equivalent.

4. **Advanced Cookery I.** This course will be in advance of previous courses in its adaptation to the more mature minds of the students. Emphasis will be laid on good combinations in serving through the making of menus, cooking and serving of meals for every-day use and social occasions; attention will be given to the care of the dining room, table laying and serving. Theoretical work explaining bacterial actions such as souring of milk and bread, ripening of cheese and vinegar, spoiling of fruit, study of changes brought about by yeast in bread, and fermentation industries.

Sophomore year; first semester; three credits; one recitation; two laboratory periods.

Prerequisites: Domestic Science 1, and 2 or 3; Chemistry 3, 4.

5. **Advanced Cookery II.** Continuation of course 4 in practical cookery, theoretical work and serving. Preparation of dishes for such special occasions as picnic parties, birthday luncheons, and banquets; special problems in cooking with limitations as to numbers, expense, and time of preparation.

Sophomore year; second semester; three credits; one recitation; two laboratory periods.

6. **Laundering III.** Subject matter and treatment practically the same as that of courses E and F. Higher ideals in work, better technique and better power of accomplishment will be expected in this course, which will be adapted to the teaching of this subject as well as to home use.

Sophomore year; second semester; one credit; one laboratory period.

7. **Special Cookery.** Infant diet will be studied with reference o the condition of organs and agencies in digestion; modified nilk and infant foods, from beef juices, barley gruel, fruit juices, ggs, and cereals, will be made. General care in abnormal condiions requiring attention on the part of the mother, will be conidered. Invalid cookery, including the preparation and serving f foods adapted to common diseased conditions of the digestive nd circulatory systems; dishes from gluten flour, oysters, eggs, ruits, and milk will be made. This work will be of service to tudents of home nursing.

Elective; junior year; first semester; two credits; two laboratory eriods.

8. **Home Nursing.** Lectures, demonstrations, and practice in ome nursing problems such as dressing cuts and burns, bandaging, rrangement of the sick room, bed making, restoration from faintng and drowning, general care in cases of fever and other common iseases.

Junior year; second semester; one credit; one laboratory period.

9. **Marketing.** Consideration of the economical purchase and reservation of foods; familiarity with the various types of narkets; practice in obtaining raw materials for various purposes n both large and small quantities.

Elective; junior year; first semester; two credits; two laboratory eriods.

10. **Home Problems.** A course dealing with the practical appliation of knowledge in cooking, serving, marketing, and laundering. t will consist largely in independent work in planning and preparg meals to family sized groups, in the model suite of rooms, and in aking entire care of these rooms, being an adaptation of previous raining to home life. Special problems adapted to those desiring raining for institutional work will be given.

Elective; junior year; second semester; two credits; two laboraory periods.

11. **House Sanitation.** The consideration of such problems as he best and least expensive methods of heating, ventilating, and ighting; also good plumbing and systems of supplying hot and cold vater and carrying away waste water. All practical applications

will be based upon a thorough understanding of the fundamenta physical principles involved.

Senior year; second semester; two credits; two recitations.

12. **Advanced Dietetics I.** A study of the physiology of alimentation; mechanical, chemical, and psycho-chemical process of digestion and foods as related to the body.

Elective; senior year; two credits; two recitations.

13. **Advanced Dietetics II.** A study will be made of food principles and the proportions present in common foods. This cours will include the compiling of good menus, calculation of dieteti value of a variety, and the actual serving of these menus, comparing theoretical and actual food value; also the study of specia diets for children, students and hard working men. The bes books on this subject will be read. Students will prepare a food museum showing food constituents present in their relative proportions in one pound each of twelve typical foods.

Elective; senior year; second semester; two credits; two laboratory periods.

14. **Fancy Cookery.** This course involves so-called fancy cookery; puff paste, cream puffs, aspic jellies, boning of fowls, chafing dish delicacies, lobster a la Newburg, Welsh rarebit, fancy desserts, cakes and wafers.

Elective; senior year; second semester; two credits; two laboratory periods.

15. **Household Economics and Management I.** This course deals with care of the house, including best methods of cleaning metals, woods, glass, floor and wall coverings, and the study of the construction and care of stoves, ice boxes, fireless cookers, etc.

Elective; senior year; first semester; one credit; one laboratory period.

16. **Household Economics and Management II.** Deals with the management and organization of the household, the expenditure of the income, the comparison of cost of fuels and other household expenditures, work and domestic service, and household accounts.

Elective; senior year; second semester; one credit; one laboratory period.

17. **Normal Methods I.** A course in methods of teaching, consisting of lectures and observational work with criticism.

Elective; senior year; first semester; one credit; one recitation.

18. **Normal Methods II.** A continuation of course 17. Schools of different grades in the vicinity, both city and country, will be visited by the students with the purpose of deciding in which grades cooking and sewing should be taught and giving the necessary information for planning intelligent courses of study for such grades.

A Saturday morning class of children will be held in the College school kitchens and sewing rooms. The members of the Normal Methods class will, in turn, teach this class and later discuss it in their own class period, so that all may receive some benefit from each class taught.

Elective; senior year; second semester; three credits; one recitation; two laboratory periods.

19-20. **Plain Cookery for Foresters I and II.** The aim of this course is to give a general knowledge of underlying principles of cookery and their application to foods that are used in camp life. A study will be made of cooking processes best adapted to camp conveniences and methods of purchasing and the preservation of foods.

Elective; junior or senior year; first and second semesters; one laboratory period.

Technical Cookery. For women desiring knowledge of practical cookery for home use. A study of common types of food and their preparation in palatable and attractive forms. One lesson per week. Two terms of twelve lessons each. Fee, $2.50 per term.

Domestic Art.

1. **Sewing I.** Similar to courses A, B, but requiring better technique, broader comprehension of work and greater power of accomplishment than courses A. B. Both hand and machine sewing will be taught on articles such as aprons, towels and runners, napkins and tray cloths and a set of underwear.

Freshman year; first semester; two credits; two laboratory periods.

2. **Sewing II.** A continuation of course 1. This course is for

those students who come prepared with a year's work in sewing, and in the second semester is given for those who have had Dom. Art I. It is a continuation of Domestic Art I and will consist of more advanced work along the same lines. Drafting will be given, and a child's dress and plain shirtwaist suit will be made.

Freshman year; second semester; two credits; two laboratory periods.

3. **Simple Dressmaking and Hand Sewing and Millinery I.** The drafting and making of dresses, including infants' and children's clothing, also the construction of bonnets and hats suitable for various occasions. Design, technique, appropriation of colors and material will be emphasized; attention will be given to hand sewing and embroidery where such is applicable.

Sophomore year; first semester; three credits; three laboratory periods. Prerequisites: Sewing (Domestic Art A, B, and C, D), or Sewing (Domestic Art 1, 2).

4. **Simple Dressmaking and Hand Sewing and Millinery II.** A continuation of Domestic Art 3.

Sophomore year; second semester; three credits; three laboratory periods.

5. **Dressmaking and Tailoring.** Drafting and making of costumes for various occasions, calling, dinner, dances, etc., giving experience in handling various materials and a scope for originality, good taste, beauty and appropriateness in design and costume, also the development of technique.

Elective; junior year; first semester; two credits; two laboratory periods. Prerequisites: Domestic Art 1, 2, 3, 4.

6. **House Construction and Decoration.** The application of art principles to the construction and furnishing of all parts of the house; the practical work will consist in the making of house plans, giving careful attention to the arrangement, that both convenience and beauty obtain, also the selection of materials for furnishings, woodwork, papering, furniture, rugs, curtains; expense, appropriateness, combining of colors and various textures receiving careful consideration.

Junior year; second semester; three credits; one recitation; two laboratory periods.

7. **Basketry I.** A form of decorative art which involves the construction of such articles as will require careful consideration of color, form and design, affording opportunities for the expression of the originality of the individual in the making of reed, raffia, ash and sweet grass baskets.

Elective; junior year; first semester; two credits; two laboratory periods.

8. **Basketry II.** A continuation of course 7, requiring the completion of a large problem or the beginning of a more difficult one than previously attempted.

Elective; junior year; second semester; two credits; two laboratory periods.

9. **Advanced Basketry and Weaving I.** A continuation of courses 7 and 8, involving larger and more difficult problems in basket weaving; also the weaving of fabrics on a hand loom of ordinary form.

Elective; senior year; first semester; two credits; two laboratory periods.

10. **Advanced Basketry and Weaving II.** A continuation of course 9.

Elective; senior year; second semester; two credits; two laboratory periods.

11. **Handwork and Weaving I.** A course involving the construction of useful and beautiful articles illustrating what the mind and hand can conjointly do, thus making the most of the student on his executive as well as his reflective side. This work involves splicing of rope, knotting, braiding, netting, bead work, crocheting, embroidery and weaving.

Elective; senior year; first semester; two credits; two laboratory periods.

12. **Handwork and Weaving II.** A continuation of course 11.

Elective; senior year; second semester; two credits; two laboratory periods.

13. **Textiles.** A series of lectures on the manufacture of textiles. The materials used in making the various kinds, their uses, both practical and decorative, will be given consideration.

Elective; junior and senior years; second semester; one credit.

14. **Normal Sewing.** This course is offered for students desiring to teach sewing. Courses of sewing will be planned for children of different ages; each article of the course being made by the class so that each student will know intimately the problems connected with it. The best methods of presenting the work to the children will be taught.

Elective; senior year; first semester; two credits; two laboratory periods. Prerequisites: Domestic Art 1, 2, 3, 4, 5.

15. **Children's Dressmaking.** Making of clothes suitable for children of different ages, including infants' clothing. Handwork will be applied where desirable. Emphasis will be laid on appropriateness and attractiveness.

Elective; senior year; second semester; two credits; two laboratory periods. Prerequisites: Domestic Art 1, 2, 3, 4, 5.

16. **Advanced Dressmaking and Tailoring.** Making draped gowns, drafting and making tailored waists, skirts and coats. Requires excellence in technique and perfect accuracy in construction.

Elective; senior year; first semester; three credits; three laboratory periods. Prerequisites: Domestic Art 1, 2, 3, 4, 5.

17. **Costume Design.** Special application of art principles to the designing of costumes and hats with a series of lectures on the ''History of Costume Design.''

Elective; senior year; first semester; two credits; two laboratory periods.

18. **Special Millinery.** Construction of children's hats and caps, women's bonnets and evening hats.

Elective; senior year; second semester; two credits; two laboratory periods.

CIVIL ENGINEERING.

Professor Skelton.
Mr. Gardner.
Mr. Gould.

1. **Plane Surveying I.** This course includes recitations, lectures, field and office work in the theory and practice of plane surveying. The theory and construction of the different surveying instruments are studied and practice will be given in making their tests and adjustments. The United States public land surveys and land laws are studied. Forms of field notes, methods of balancing and plotting surveys, computing areas and like work, will have due consideration. Proper emphasis will be placed upon chain surveying. Surveys will be made of assigned plats and descriptions prepared. Resurveys will be made where more than ordinary difficulty is encountered in the interpretation of descriptions and existing evidence.

The courses in Civil Engineering, Mining Engineering, and Forestry; freshman year; second semester; five credits; until April 15, four recitations; one laboratory period; after April 15, five laboratory periods.

Prerequisites: Mathematics 1 and Mechanical Engineering 1.

2. **Plane Surveying II.** This course is a condensation of course 1, and is designed for students in the courses in Agriculture and Mechanical or Electrical Engineering. The greater part of the time is spent by the student in the field with the various instruments. Exercises relating to farm surveying, drainage, irrigation, and road construction, occupy most of the time. Areas are computed, profiles are constructed and estimates formed.

Elective; second semester; three credits; three laboratory periods, in the field or office.

Prerequisite: Mathematics 1.

3. **Engineering Drawing I.** A continuation and extension of the previous work in drawing with special reference to application in Civil Engineering. Practice in tracing and in blue and black process printing will be given.

Sophomore year; first semester; two credits; two laboratory periods.

Prerequisites: Mechanical Engineering 1 and 2; Art 1.

4. **Engineering Drawing II.** This course is a continuation of course 3.

Sophomore year; second semester; two credits; two laboratory periods:

Prerequisite: Civil Engineering 3.

5. **Topographic Surveying.** This course will include the execution of a complete topographic survey of an assigned tract, including base line measurement, transit, stadia and plane table work, platting and finishing the map.

The courses in Civil Engineering and Forestry; sophomore year; first semester; four credits; five laboratory periods, until the Christmas holidays.

Prerequisites: Civil Engineering 1; Mechanical Engineering 1; Art 1.

(During fall semester, junior year, 1910-1911.)

6. **Railroads I.** Theory of economic grades, circular and spiral curves, turnouts, earthwork computations, and similar topics.

Sophomore year; first semester; one credit; five recitations, from the Christmas holidays to the end of the semester.

Prerequisites: Civil Engineering 1 and 5.

(During fall semester, junior year, 1910-1911.)

7. **Railroads II.** This course is a continuation of course 6. A reconnaissance and location survey of a line several miles in length will be made, maps and profiles constructed, and estimates formed.

Sophomore year; second semester; five credits; two recitations; three laboratory periods.

Prerequisite: Civil Engineering 6.

(During spring semester, junior year, 1910-1911.)

8. **Highway Construction.** This course includes a consideration of the fundamental principles of location, construction, and maintenance of roads, as well as a thorough study of the materials used in road and street building.

Junior year; first semester; three credits; three recitations.

(During the first semester, senior year, 1910-1911; five credits; four recitations; one hour drafting room.)

9. **Masonry and Foundations.** A study of the properties of stone, brick, lime, cement, and concrete as building materials and of their uses in foundations, retaining walls, piers, and dams; the theory of the masonry arch, retaining wall and dam. Recitations, lectures, and work in cement laboratory.

Junior year; second semester; four credits; three recitations; one laboratory period.

(During senior year; second semester, 1910-1911; five credits; four recitations; one period laboratory or computing room.)

10. **Roofs and Bridges I.** Both analytical and graphical methods will be applied to the determination of the stresses in roof trusses under static and wind loads and in simple bridge trusses under static and moving, concentrated and distributed, loads.

Senior year; first semester; four credits; two recitations; two laboratory periods.

Prerequisites: Mechanical Engineering 5 and 6.

11. **Roofs and Bridges II.** This course is a continuation of course 10. Draw-bridges, cantilever and suspension bridges, and reinforced concrete arch.

Senior year; second semester; four credits; two recitations; two laboratory periods.

12. **Sanitary Engineering.** Drainage systems for populous districts, including chemical and bacterial purification of sewage; collection and disposal of garbage; street cleaning; separate and combined water carriage system; surveys, plans, and specifications; law of flow and determination of size and capacity; brick, terra cotta, cement, and concrete sewers.

Senior year; first semester; three credits; two recitations; one laboratory period.

Prerequisite: Mechanical Engineering 7.

13. **Water Supply Engineering.** Water supply for populous districts; gravity and pumping systems; pumping machinery, standpipes, reservoirs, and purification works; the preparation of plans, specifications, and contracts.

Senior year; first semester; three credits; two recitations; one laboratory period, designing and computing room.

Prerequisite: Mechanical Engineering 7.

14. **Irrigation Engineering.** Precipitation, run-off, and stream-flow; quantity of water required; measurements of flow in open channels; distribution systems, headworks and storage reservoirs, and other like topics. Study of a typical project including the preparation of plans and specifications.

Senior year; second semester; four credits; three recitations; one laboratory period.

15. **Contracts and Specifications.** A study of the general principles and laws of contracts as applied to engineering, including the preparation and study of specifications and contracts based upon engineering structures designed by the individual student.

Senior year; second semester; one credit; one recitation.

16. **Engineering Seminar I.** The members of the junior and senior classes in the course in Civil Engineering, and the professor and instructors, constitute the Civil Engineering Seminar which meets once a week. The purpose of this seminar is to bring the student in touch with engineering literature and practice. To this end, a number of journal reviews and papers on engineering subjects will be presented and freely criticised each week. The work will follow a previously arranged program.

Junior year; second semester; one credit.

(During the first semester, senior year, 1910-1911.)

17. **Engineering Seminar II.** See course 16.

Senior year; first semester; one credit.

(During second semester, senior year, 1910-1911.)

18. **Engineering Seminar III.** See course 16.

Senior year; second semester; one credit.

Courses 10, 11, 12, 13, 14, and 15 are given during the year 1910-1911 only to the fifth year or graduate classes.

ELECTRICAL ENGINEERING.

Professor Gardner.
Mr. Hawley.
Mr. Shepard.
Mr. Ewart.
Mr. Pernot.

1. **Dynamo-Electric Machinery.** In this course the student becomes familiar with the fundamental laws of electric and magnetic circuits; the structure of generators and motors; estimation of resistances, losses, and efficiencies; armature windings; and the types of machines suited to modern requirements.

Junior year; first semester; three credits; three recitations.

Prerequisites: Physics 3 and 4; Mathematics 7 and 8.

2. **Alternating Currents.** In this course alternating currents are considered both from a mathematical and graphical standpoint. It includes the measurement of power; study of the action of resistance, inductance and capacity in series and parallel circuits; effect of variation of frequency and wave form; the general theory of alternators, transformers, induction motors, converters, and their construction.

Junior year; second semester; three credits; three recitations.

Prerequisites: E. E. 1; Mathematics 7 and 8.

3. **Advanced Alternating Currents.** The action and operation of alternating current generators; motors of synchronous and induction types, and transmission lines are considered mathematically; the Steinmetz symbolic method of solution of problems being used.

Senior year; first semester; three credits; three recitations.

Prerequisite: E. E. 2.

4. **Electrical Engineering Laboratory I.** Construction of direct current dynamos and motors and their operation; the applications of ammeters, voltmeters, and wattmeters to the measurement of power are made familiar to the student. Field and armature resistances, and characteristic curves are obtained. Commercial tests are made.

Junior year; first semester; two credits; two laboratory periods.

Prerequisites: Physics 3 and 4; Mathematics 7 and 8.

5. **Electrical Engineering Laboratory II.** Study of alternating current circuits, instruments, and machines; determination of candle-power of arc and incandescent lamps; commercial testing.

Junior year; second semester; two credits; two laboratory periods.

Prerequisite: E. E. 4.

6. **Electrical Engineering Laboratory III.** Advanced direct and alternating current testing, including that of single and polyphase alternators; synchronous and induction motors; transformers; synchronizing, and transmission line operation.

Senior year; first semester; two credits; two laboratory periods.

Prerequisite: E. E. 5.

7. **Electrical Engineering Laboratory IV.** Continuation of E. E. 6.

Senior year; second semester; two credits; two laboratory periods.

Prerequisite: E. E. 6.

8. **Electrical Distribution.** The different types of electric circuits and systems of wiring from an economic standpoint; aerial and underground construction; house wiring, and best forms of illumination.

Senior year; first semester; two credits; two recitations.

Prerequisites: E. E. 2 and 5.

9. **Electrical Design I.** Required of each two students who take this subject, a design of a direct current generator, consisting of four tracings of design plates which they have made on detail paper, and a complete report on same, giving all computations and dimensions, which is accompanied by a sheet of predetermined performance curves. Each student is required to design a transformer and make a report upon same. Number of plates required per student taking this course is three.

Senior year; first semester; three credits; three laboratory periods.

10. **Electrical Design II.** Required of each two students, the design of an alternator or rotary converter, and an induction motor. Four tracings per student; two reports.

Senior year; second semester; three credits; three laboratory periods.

Prerequisite: E. E. 9.

11. **Power Plants.** Principles governing the location of power plants, both steam and hydraulic; the economics of transmission; selection and installation of generating units; railway construction and rolling stock; management and testing of complete plants are considered. Time is devoted to the study of estimates, specifications, and superintendence. A design of a steam electric or hydro-electric power station and distribution system. An engineering report upon such design is required to complete this subject.

Senior year; second semester; three credits; three recitations.

Prerequisite: E. E. 3.

12. **Seminar I.** Weekly meetings are held for the discussion of articles appearing in current periodicals and scientific papers.

Elective; senior year; first semester; one credit.

13. **Seminar II.** Elective; senior year; second semester; 1 credit.

14. **Storage Batteries.** The several types of storage batteries are studied from chemical, physical, and commercial standpoints.

Senior year; second semester; one credit; one recitation.

15. **Telephony.** The underlying principles of the transmission of intelligence by electrical means, and the methods of operation of the telegraph, telephone, wireless telegraph, wireless telephone, and their relative values commercially, are studied.

Senior year; two credits; two laboratory periods.

16. **Thesis I.** Most of the preliminary reading and planning is done during the first semester, while the actual investigation or construction work occurs in the second semester.

Senior year; first semester; one credit.

17. **Thesis II.** A continuation of course 16.

Senior year; second semester; one credit.

18. **Electro-Chemistry.** Electric heating and electrolytic processes for the manufacture of chemicals and metals are discussed. Different types of electric furnaces and storage batteries are considered.

Elective; senior year; second semester; two credits; two laboratory periods.

MECHANICAL ENGINEERING.

Professor Covell.
Assistant Professor Phillips.
Mr. Jackson.
Mr. Porter.
Mr. Knopf.
Mr. Graf.

1. **Mechanical Drawing I.** The use of instruments and the elementary principles of mechanical drawing are taught by a graded series of plates, including simple practice sheets, geometric constructions, principles of orthographic projection, shading, the helix with its application to screw-threads, and finally the complete development of a working blue-print of some simple device from sketches. Particular attention is given to freehand lettering, general neatness, and accuracy.

All courses in Engineering; freshman year, and Secondary course in Forestry; second year; first semester; three credits; three laboratory periods.

2. **Descriptive Geometry.** This work consists in the graphical solution of problems involving the projection of lines, surfaces, and solids.

All courses in Engineering; freshman year; second semester; three credits; two recitations and one laboratory period.

Prerequisite: Mechanical Drawing 1.

3. **Mechanical Drawing II.** A continuation of course 1, including mechanical lettering, line shading, isometric and oblique projection, gear curves and their application to spur, bevel, and worm gearing. Following this is the preparation of a typical set of working drawings, tracings, and blue-prints of a complete machine. Rapid and business-like execution of work is insisted upon at all times.

The courses in Electrical and Mechanical Engineering; sophomore year; first semester; four credits; four laboratory periods.

4. **Mechanism.** A study of mechanical movements, including

velocity ratios; transmission of motion by linkwork, gearing, cams, and belting.

The courses in Electrical and Mechanical Engineering; sophomore year; second semester; four credits; two recitations; two laboratory periods.

Prerequisite: Course 2.

(During 1910-1911 this course will be required only in the first semester of the junior year in Mechanical Engineering; three credits; two recitations; one laboratory period.)

5. **Statics and Dynamics.** This course treats of the action of forces upon bodies at rest or in motion. Many original problems are worked and the practical applications pointed out.

All courses in Engineering; junior year; first semester; four credits; four recitations.

Prerequisites: Mathematics 5 and 6.

6. **Strength of Materials.** A study of the strength of materials with special reference to their use in such engineering structures as beams, trusses, girders, and shafting.

All courses in Engineering; junior year; second semester; two credits; two recitations.

Prerequisite: Course 5.

7. **Hydraulics.** This course deals with theoretical hydraulics, including statical pressure, immersion, flotation, and steady flow through pipes and orifices, as well as over weirs and in open channels. Bernoulli's theorem is taken as the basis for calculation of flow in pipes and through orifices, with such modifications as are required to allow for frictional and other resistances.

All courses in Engineering; junior year; second semester; two credits; two recitations.

Prerequisite: Course 5.

(During 1910-1911 courses 5, 6, and 7 will be given in the senior year of all Engineering courses instead of the junior year.)

8. **Materials of Engineering.** This is largely a lecture course dealing with the materials used in engineering structures. Iron, steel, brick, cement, timber, and stone are discussed with reference to their physical properties and adaptability to the purposes of engineering construction.

The courses in Civil and Mechanical Engineering; junior year; first semester; two credits; two recitations.

Prerequisites: Physics 3 and 4.

9. **Elementary Steam Engineering.** It is the purpose of this course to teach the elementary principles of steam engineering, in as practical a manner as possible, to students who are not taking one of the engineering courses. The scientific principles are taught by means of recitations, but a large part of the work consists of laboratory exercises, where the student comes into actual contact with steam machinery and learns to operate and care for it.

The course in Forestry; junior year; first semester; two credits; one recitation and one laboratory period.

10. **Steam Machinery.** This course treats of steam boilers, feed water heaters, injectors, mechanical stokers, steam engines, governors, valve gears, indicators, and indicator diagrams. The purpose is to make the student familiar with the forms of these devices, which are of prime importance in a power plant, and to solve problems concerning their installation and use.

The courses in Electrical and Mechanical Engineering; junior year; second semester; two credits; two recitations or an equivalent.

Prerequisites: Physics 3 and 4.

11. **Engineering Laboratory I.** A brief study of experimental investigation; discussions on the reduction of data so obtained; mechanical calculating devices; the preparation of neat and accurate reports.

The calibration of gages, weirs, indicator springs, planimeters, and other measuring instruments is followed by the usual tests on the materials of construction. These include transverse, tensile, compressive, and torsion tests, of timber, iron, and steel, as well as the various standard tests on cements, stone, brick, and road materials.

The courses in Civil and Mechanical Engineering; junior year; and in Mining Engineering, senior year; first semester; two credits; two laboratory periods:

(During the year 1910-1911: the courses in Civil and Mechanical

Engineering; senior year; first semester; two credits; two laboratory periods.)

12. **Engineering Laboratory II.** A continuation of the preceding course, including tests of lubricants, calorific power of fuels, composition of flue gases, exercises in steam calorimetry, and in valve setting by the aid of the indicator.

Efficiency tests of steam, gas, and air engines, boilers, pumps, and centrifugal blowers. In hydraulics: efficiency tests of a Doble wheel, centrifugal pump, and hydraulic ram; determination of stream flow by weir and current meter.

The courses in Civil and Mechanical Engineering; junior year; Mining and Electrical Engineering; senior year; second semester; two credits; two laboratory periods.

Prerequisite: Course 11.

(During year 1910-1911: the courses in Civil and Mechanical Engineering; senior year; second semester; two credits; two laboratory periods.)

13. **Machine Design I.** This course is elementary and consists largely in applying the principles discussed in mechanism and in mechanics to the design of machine parts, riveted joints, fastenings, belting, and shafting.

Senior year; first semester; four credits; two recitations; two laboratory periods.

Prerequisites: Courses 4 and 6.

14. **Machine Design II.** A continuation of course 13, devoted to the design of complete machines, steam engines, machine tools, pumping machinery, and their installation.

Senior year; second semester; four credits; four laboratory periods.

Prerequisite: Course 13.

15. **Thermodynamics.** This course treats of the laws governing the transformation of heat into work, particularly in the steam engine. The general laws of thermodynamics are discussed and a number of practical problems are solved.

The courses in Electrical and Mechanical Engineering; senior year; first semester; three credits; three recitations or lectures.

Prerequisites: Mathematics 5 and 6; Physics 3 and 4.

16. **Internal Combustion Motors.** In this course the application of thermodynamics to gas and oil engines is studied with reference to economy of operation and the results are compared with those obtained from the steam engine. The properties and cost of fuels are discussed, as well as the methods of carburation and ignition.

Senior year; second semester; two credits; two recitations.

Prerequisite: Course 15.

17. **Steam Turbines.** The steam turbine has taken its place as one of the important factors in transforming energy into work. Hence, the principles involved in its construction and operation should be well understood by engineering students. This course considers flow of steam through pipes and nozzles and its action on turbine buckets. The effects of superheating are noted and some attention is given to steam turbine design.

Senior year; second semester; two credits; two recitations.

Prerequisite: Course 15.

18. **Hydraulic Motors.** The application of the principles of theoretical hydraulics and mechanics to the development of power by means of water wheels, is discussed. The different types of turbines and impulse wheels are considered with reference to their forms and adaptability.

Senior year; first semester; two credits; two recitations.

Prerequisite: Course 7.

(During 1910-1911: courses 15, 16, 17, and 18 are required only cf students taking the fifth or graduate year.)

SHOP WORK.

A. **Woodwork I.** Mechanic Arts Course. This course in woodwork will be divided into three parts, carried on simultaneously.

a. A lecture course on methods and materials used in Mechanic Arts, including bench equipment, use and care of bench tools; carpentry and laying out work; joinery or putting work together; fastenings, structure and defects of wood; methods of cutting and seasoning; furniture construction and design; wood finishing, painting, staining, varnishing, waxing, and polishing. This will require one hour a week.

b. One hour a week will be devoted to mechanical drawing and a study of drawings to enable the student to make drawings of the articles which he is called upon to make in the shop and to interpret drawings in general.

c. A woodwork course, including joinery, primary construction work, furniture construction and finishing. The purpose of this course is to instil a knowledge of the principles of joinery by teaching the use and care of woodworking tools, to develop skill in their use by means of progressive exercises. The application of the joints is shown in the construction of finished products. All of the operations must be methodically and accurately performed, and the finished product have a neat and workmanlike appearance.

Secondary course in Mechanic Arts; first year; first semester; five credits; one recitation; four laboratory periods.

B. **Woodwork II.** A continuation of course A.

The Secondary courses in Mechanic Arts; first year; second semester; five credits; one recitation; four laboratory periods.

C. **Woodwork III.** Mechanic Arts course. Those who desire to specialize in woodwork may do so by devoting the whole time allotted to industrial work to this branch. Such students will continue along the same lines as indicated in courses A and B and during the second year will enter upon high grade cabinet work.

The Secondary course in Mechanic Arts; second year; first semester; five credits; five laboratory periods.

D. **Woodwork IV.** A continuation of course C.

The Secondary course in Mechanic Arts; second year; second semester; five credits; five laboratory periods.

E. **Patternmaking I.** Mechanic Arts Course. Those who prefer patternmaking to cabinet work may devote the second year to that subject, following the plan outlined under C and D.

The Secondary course in Mechanic Arts; second year; first semester; five credits; five laboratory periods.

F. **Patternmaking II.** A continuation of course E.

The Secondary course in Mechanic Arts; second year; second semester; five credits; five laboratory periods.

G. **Woodwork V.** This course will be equivalent to the first six weeks of the Mechanic Arts course (A) and must be taken **at the same time.**

It consists of six lectures on the care and use of bench tools, six lessons in mechanical drawing, and twenty-eight laboratory periods in the practical use of the various tools in the way of planing, sawing, chiseling, etc.

In this course each student is required to have a drawing board, T-square, compass, lead pencil and three sheets of mechanical drawing paper, the cost of which will not exceed one dollar.

The Secondary course in Agriculture and Forestry; second year; two credits; two laboratory periods.

H. **Woodwork VI.** Work leading to a course in Architecture. Requirements for entrance, two-year course in Secondary Manual Training or Mechanic Arts course (A) or its equivalent.

This course will consist of one lecture each week, three hours of drawing per week, embracing mechanical, perspective, and design work.

Practical experience in the use of the steel square in laying out braces, rafters, and trusses, ready for the framing, will be made a strong feature of the course. The laying out and building to scale forms and arches for concrete piers, columns, arches, and foundations will be taken up along with the framing and constructing of summer cottages, suburban homes, barns, septic tanks, and different styles of fencing and other necessities about the well-kept home.

This course will be given on Saturdays and may be taken in lieu of Secondary Mechanic Arts courses C, E, or G. However, unless twenty or more students desire to take the course, it will not be given, on account of limited shop room.

The Secondary course in Mechanic Arts; second year; first semester; five credits; five laboratory periods.

I. Woodwork VII. This is a continuation of course H, and is given in the Secondary course in Mechanic Arts; second year; second semester; five credits; five laboratory periods.

J. **Blacksmithing I.** The student is taught to make and manage the forge fire, to shape iron by bending, upsetting, drawing, and welding. The course also includes occasional lectures on the principles involved in managing the fire and in forging.

Elective; second year of the Secondary courses in Mechanic Arts; first semester; five credits; five laboratory periods.

K. **Blacksmithing II.** A continuation of course J; devoted to making useful articles and tools of iron and steel. A large part of the time is given to making and tempering steel tools. This course is also accompanied by lectures on the different grades of steel and the effects of heat treatment.

Elective; second year of Secondary course in Mechanic Arts; second semester; five credits; five laboratory periods.

Prerequisite: Course J.

L. **Blacksmithing III.** After completing the preliminary exercises, the student enters upon work having direct application to farming and forestry, such as the mending of farm implements, making chains, clevices and hooks, ironing whiffletrees and neck-yokes, and sharpening tools.

Required in the Secondary courses in Agriculture and Forestry; second year; second semester; two credits; two laboratory periods.

M. **Steam-fitting and Plumbing I.** This course is intended as an aid to those who desire to follow the occupation of steam-fitting or plumbing. The practical work includes the installation of piping for steam, water, or gas; a study of the principles involved in expansion, radiation, and water hammer. The work in plumbing takes up the construction of bends, traps, and various types of wiped joints; also a study of ventilation; the proper arrangement of soil and water pipes, hot water boilers and tanks.

Elective; second year; first semester; five credits; five laboratory periods.

N. **Steam-fitting and Plumbing II.** This is a continuation of Course M.

Elective; second year; second semester; five credits; five laboratory periods.

(During the year 1910-1911 these courses will not be given.)

O. **Woodwork XI.** This course is intended for those who wish to teach or supervise manual training work in the secondary schools. The work consists of laboratory exercises accompanied and supplemented by lectures on the care and use of manual training equipment; methods and materials used in manual training, and comparison of equipment and courses in manual training.

This course has special reference to the work of manual training in the first, second, third, and fourth grades of the public schools.

Secondary Mechanic Arts course; second year; first semester; five credits; one recitation; four laboratory periods.

P. **Woodwork XII.** A continuation of course O, applying to the manual training work of the fifth, sixth, seventh, and eighth grades.

Secondary Mechanic Arts course; second year; second semester; five credits; one recitation; four laboratory periods.

1. **Woodwork VIII.** This course, though designed for the Mechanical and Electrical Engineering students, is divided into two courses (a) and (b), because of the lack of Secondary Manual Training in Mechanic Arts in some parts of the State and the presence of it in other parts.

(a) Students who have not had the advantage of Secondary Manual Training in Mechanic Arts will enter the class in bench work for the first semester or until they have developed sufficient skill to enter the advanced work.

(b) Students who have had a year or more of Secondary Manual Training in Mechanic Arts work will enter the class in wood turning preparatory to pattern work.

The course on bench work will consist of a series of exercises in planing, sawing, and chiseling, preceded by a lecture course explaining each step in advance.

The course in wood turning is taken in conjunction with lectures on the lathe, its care and management, and the care and use of the turning tools.

After acquiring sufficient skill in turning between centers and chuck turning, the primary principles of patternmaking will be taken up, which is the main feature of the course.

Required in Mechanical and Electrical Engineering courses; freshman year; first semester; three credits; three laboratory periods.

2. **Mechanical and Electrical Patternmaking III.** The students

in Engineering will take up the art of patternmaking where they left off at the close of the first semester, beginning with simple exercises and advancing until they have made patterns for various parts of machines and other structures, such as engine cylinders, gear wheels, pulleys, dynamo frames, and special patterns as assigned. The lectures explain the principles of moulding directly related to patternmaking; the shrinkage of metals, warping and twisting of woods, glue and other fastenings; the making of cores and core boxes; methods of marking and storing patterns; and how to estimate the weight of iron castings.

The courses in Electrical and Mechanical Engineering; freshman year; second semester; three credits; three laboratory periods.

3. **Woodwork IX.** This course is designed for Mining and Civil Engineering students, and consists primarily of a series of constructive exercises in carpentry and joinery, accompanied by one lecture a week dealing with the care and use of bench tools; the use of the steel square in framing and laying out work. The first constructive exercises are designed to teach the use of the various hand tools as well as the forms of joints and ties used in truss and bridge framing, dictated by good engineering practice.

Upon completing this series of exercises, the preceding joint work will be developed into trusses and bridges which upon being completed will be placed in the testing laboratory for experimental purposes.

During the latter part of the semester the Mining Engineering students specialize in mine timbering, and the Civil Engineering students in cement forms and trusses for foundation and arch construction.

Mining course; freshman year; first semester; three credits; three laboratory periods.

4. **Woodwork X.** This course is equivalent to that in the Winter Short Course in Mechanic Arts, and on account of shop room and limited instructing force, will have to be taken at the same time, or during the first seven weeks of the second semester. The purpose of this course is to give instruction in the care and use of modern woodwork benches and their equipments. Six lectures will be given in this course, each lecture preceding its prac-

tical application. Skill in the manipulation of tools cannot be obtained in this short time, but instruction and practice will be given in sharpening chisels, planes and other edge tools; in jointing, setting, and filing hand-saws, and in the use of the steel square as in the elementary principles of carpentry. As much stress will be placed on planing, sawing, and chiseling exercises as time will permit.

The courses in Agriculture and Forestry; freshman year; secon semester; two credits; two laboratory periods.

5. **Blacksmithing IV.** The student is taught to make and manage the forge fire; to shape iron by bending, upsetting, drawing and welding. Many useful articles are made, consisting of hooks staples, rings, clevices, and chains.

The courses in Mechanical and Electrical Engineering; sophomor year; first semester; three credits; three laboratory periods.

6. **Blacksmithing V.** This is a continuation of course 5, an is devoted to more advanced work, consisting largely of work i steel. The principles of hardening and tempering are taught an applied in making hammers, chisels, drills, cutting tools for th shop, and in doing special work as assigned.

The course in Mechanical Engineering; sophomore year; secon semester; three credits; three laboratory periods.

7. **Blacksmithing VI.** A course for students in Agricultur After completing the first exercises, the student enters upon wor having a direct application to farming, such as the mending o farm implements, making and mending of chains, clevices, an hooks; ironing of whiffletrees and neckyokes; sharpening of tool

The courses in Agriculture and Forestry; freshman year; seco semester; two credits; two laboratory periods.

8. **Blacksmithing VII.** A course for students in Mining Eng neering. After learning the care and management of the forg fire, the student will devote his time to making and temperin cold chisels, rock drills, picks, etc.

The course in Mining Engineering; sophomore year; first seme ter; two credits; two laboratory periods.

9. **Machine Shop I.** The work in the machine shop include

both bench work and machine work. Upon first entering the shop, the student is taught the principles of chipping, filing, and hand finishing. This occupies the first half of the semester. Machine work is then taken up through a series of exercises on lathe, shaper, planer, drill press, and milling machine. As soon as accuracy and proficiency are shown on the part of the student, he is assigned to construction work upon engines, dynamos, motors, or machine tools.

The course in Mechanical Engineering; junior year; first semester; and in the course in Electrical Engineering; sophomore year; second semester; three credits; three laboratory periods.

10. **Machine Shop II.** A continuation of course 9, devoted to machine construction and milling machine work. Special attention is paid to economical shop methods of doing work.

The course in Mechanical Engineering; junior year; second semester; three credits; three laboratory periods.

11. **Machine Shop III.** A course for students in Electrical Engineering. Special attention is given to the mechanical construction of dynamos, motors, and laboratory apparatus.

The course in Electrical Engineering; junior year; first semester; two credits; two laboratory periods.

12 and 13. **Machine Shop IV and V.** These courses are a continuation of the work outlined in the junior year, and are intended for those who desire to devote further time to this branch, or for those who are engaged upon construction work in the preparation of theses.

Elective; three credits; three laboratory periods.

Prerequisites: Courses 9 and 10.

MINING ENGINEERING AND GEOLOGY.

Professor Parks.
Mr. Cooke.
Mr. French.

GEOLOGY.

1. **Crystallography and Blowpipe Analysis.** This course is intended as a preliminary one, and is a preparation for the work in Determinative Mineralogy, which follows. Only such portion of the subject is especially emphasized as is of practical value in the determination and proper understanding of minerals. The student is given a thorough drill in the more practical portion of the subject. The course is presented through lectures, textbooks, laboratory work, and individual quizzes. In the laboratory work, each student is required to become thoroughly familiar with crystal forms and combinations by working with the wooden crystal models, and later, with the aid of a pocket lens and contact goniometer, to determine the crystal forms of a greater number of natural crystals.

Sophomore year; first semester; four credits; two recitations; two laboratory periods.

Prerequisites: Chemistry 1 and 2; Mathematics 1 and 4.

2. **Determinative Mineralogy.** In this course, about one hundred and sixty of the most important mineral species are presented by lectures, in which special emphasis is laid on the recognition of minerals by means of their physical properties and crystal forms. The course is not intended to train the student to determine any mineral whatever, but rather to recognize at sight, with the aid of a pocket lens and knife, such minerals as are likely to be met with in actual mining work. With this object in view, as thorough a drill as time will allow is given in the actual handling and determination of minerals in the laboratory. In the work, each student is expected to handle, determine, and be examined on, approximately twelve hundred individual specimens.

Sophomore year; second semester; four credits; two recitations; two laboratory periods.

Prerequisite: Geology 1.

3. **General Geology.** This study deals with the principles of dynamical, structural, stratigraphic, and historical geology. It includes a discussion of the different agencies, such as atmospheric, aqueous, igneous, and organic, which have been instrumental in producing the earth in its present form and structure. Students make excursions to places of geological interest to verify points discussed in the class room.

Sophomore year; second semester; three credits; three recitations.

Prerequisites: Mathematics 1, 4, and 5; Chemistry 1 and 2.

4. **Engineering Geology.** This includes a discussion of the principles of dynamical and structural geology, as well as a study of the more common minerals and rocks, special emphasis being laid upon structural materials.

Course in Forestry; sophomore year; elective in the course in Civil Engineering; senior year; second semester; three credits; three recitations.

Prerequisites: Mathematics 1, 4 and 5; Chemistry 1 and 2.

5. **Economic Geology.** This course deals with the application of the science of geology in industrial relations and operations. It requires an elementary knowledge of chemistry, mineralogy, and geology, and includes the discussion of the mode of occurrence and origin of minerals and ore bodies, especially those containing the precious metals. Attention is also given to other natural products of economic value, such as coal, iron, petroleum, and building stones.

Senior year; second semester; three credits; three recitations.

Prerequisites: Geology 1, 2, 3, and 6.

6. **Petrology.** The object of this course is to drill the student on all of the more commonly occurring rocks in such a way as to render their identification reasonably accurate. The methods pursued are purely those applicable to the hand specimens without aid of microscopic sections. The subject is presented by means of lectures and textbooks, supplemented by laboratory work.

Senior year; first semester; two credits; one recitation; one laboratory period.

Prerequisites: Geology 1, 2, and 3.

7. **Petrography.** This course takes up the optical properties of minerals and follows Petrology by a study of thin sections of rocks by the petrographic microscope. It is an elective course, to be limited to such students as are specially qualified to take it.

Prerequisites: Geology 1, 2, 3, and 6.

8. **Agricultural Geology.** This course deals with the origin and nature of soils from a geological standpoint entirely. A study is first made of the main groups of rocks with reference to structure and chemical composition, and followed by a study of rock weathering and the products derived from rock decay.

Senior year; first semester; three credits; three recitations.

Prerequisites: Chemistry 1 and 2.

MINING ENGINEERING.

1. **Excavating and Tunneling.** This study deals with discussions of the various methods of excavating and breaking ground, prospecting, boring, tunneling, and shaft sinking. The various tools used in excavating, boring, and drilling, and the use of explosives in breaking ground, are described in detail in the class room.

Junior year; first semester; three credits; three recitations.

Prerequisites: Geology 1, 2, and 3.

2. **Mine Surveying and Mining Law.** This course supplements the course in General Surveying (Civil Engineering 2), taken in the Civil Engineering department. The student is taught the methods used in locating and patenting mining claims, and in underground surveying. Instruction is given in carrying the meridian into the mine, laying out the workings, keeping notes, estimating areas and tonnage, the plotting of notes, construction of maps, and many other duties which are usually assigned to the mining engineer. Also a considerable time is given to the study of the laws regulating the location, possession, and operation of mineral rights in the United States. This will serve as preliminary to the more pracitcal work in connection with the summer school.

Junior year; first semester; three credits; one recitation; two laboratory periods.

Prerequisite: Civil Engineering 2.

3. **Mining I.** This is a study of the various methods used in securing the mineral products, as well as the general management of mines. The subject includes methods of timbering; methods of mining, pumping, ventilation, transportation, hoisting, mine sampling, and reporting; installation of machinery, and surface improvements. The subject is presented largely through lectures and directed reference work.

Junior year; second semester; three credits; three recitations.

Prerequisites: Geology 1, 2, and 3.

4. **Mining II.** This course takes up in detail the cost of extracting gold, silver, copper, iron, and other metal ores, as well as coal, from mines under varying conditions.

Senior year; first semester; three credits; three recitations.

Prerequisite: Mining I.

5. **Ore Dressing I.** A discussion of the various methods of concentration and the mechanical preparation of ores for metallurgical treatment. The subject is studied under the following main divisions: jaw and gyratory breakers; rolls; stamps; special, and fine grinding apparatus; sizing apparatus, such as the various types of screens and classifiers; concentrating machinery, including jigs, tables, and vanners.

Senior year; first semester; three credits; two recitations; one laboratory period.

Prerequisites: Mining Engineering 2, 3, and 12; Physics 3 and 4.

6. **Ore Dressing II.** A continuation of Ore Dressing I.

Senior year; second semester; three credits; two recitations; one laboratory period.

Prerequisites: Geology 2 and 3; Mining Eng. 7; Physics 3 and 4.

7. **Fire Assaying.** Instruction is given in the assaying of gold, silver, and lead in ores and metallurgical products by scorification and crucible methods. The student is given a thorough drill in the theory and reactions involved, supplemented largely by laboratory work, the subject being treated from a scientific and rational point of view rather than from the ''rule of thumb.'' Each student is required to make a large number of assays upon previously sampled pulps, which he must check within very close limits.

Junior year; first semester; four credits; one recitation; three laboratory periods.

Prerequisites: Chemistry 1, 2, and 6; Geology 2.

8. **General Metallurgy.** This course is an outline of the metallurgy of all the common metals except iron, and is devoted to a description of the processes of obtaining the metals from their ores, as well as the refining of the metals. Some of the detailed parts of the study are: the physical properties of metals; refractory materials; construction and operation of the various types of furnaces; fuels, calorimetry, and pyrometry.

Elective; first semester; three credits; three recitations.

Prerequisite: Geology 2.

9. **Metallurgy of Iron and Steel.** This course is a discussion of the iron industry as we find it today. It includes the manufacture and purification of pig iron; manufacture of wrought iron and crucible steel; Bessemer, open-hearth, cementation and crucible processes for steel; mechanical treatment of steel; heat treatment of steel, etc.

Junior year; second semester; three credits; three recitations.

Prerequisites: Chemistry 1 and 2; Physics 3 and 4.

10. **Metallurgy of Gold and Silver.** This course, as the name indicates, is a study of the different processes for separating gold and silver from their ores. It includes the stamp mill and amalgamation, the cyanide process, hyposulphate process, chlorination process, and other miscellaneous processes.

Junior year; second semester; three credits; three recitations.

Prerequisite: Geology 2.

11. **Metallurgy of Copper.** This is a more advanced course in metallurgy, and includes a thorough and detailed study of the underlying principles upon which methods are based, rather than descriptions of processes or apparatus. It is the aim in this course to deal largely with the **reasons why** instead of the **means how.** Although the work deals extensively with copper, the principles are common to the whole subject of metallurgy.

Elective; first semester; three credits; three recitations.

Prerequisite: Geology 2.

12. **Mining Engineering Summer School.** Immediately after the close of the College year in June, the junior and senior students go into some prominent mining district for a few weeks of summer work in surveying, and mine and metallurgical inspection. Visits are made to mills and smelters in operation. The work is planned to develop the student's power of observation, and the ability to report concisely such observation. A large part of the time is devoted to making a survey of some mine.

COMMERCE.

Professor Bexell.
Professor Crawford.
Professor Horner.
Professor Hetzel.
Mr. Moore.
Mr. Mathews.
Mr. ....

BUSINESS ADMINISTRATION.

A. **Business Forms I.** In this course the student becomes familiar with a great variety of labor saving forms used in the modern business office; the actual forms used by typical concerns in all parts of the country are studied and compared. Manifolding and labor saving devices of all kinds are studied with constant view to secure greater accuracy and to diminish work.

Secondary course; first year; first semester; four credits; four recitations.

B. **Business Forms II.** The preparation and study of business forms; construction of balance sheets and reports.

Secondary course; first year; second semester; four credits; four recitations.

C. **Practical Bookkeeping I.** The laws of debit and credit reviewed and illustrated by correspondence and office practice, exercise in checking, construction and interpretation of balance sheets; much practice in commercial correspondence; writing bills, invoices, receipts, bills of lading, legal forms, etc. W. and R. New Illustrative Bookkeeping. Commission and wholesale.

Secondary course; second year; first semester; five credits; five laboratory periods.

D. **Practical Bookkeeping II.** A thorough course in the essentials of accounting as practiced in modern business houses.

Secondary course; second year; second semester; five credits; five laboratory periods.

E. **Business Methods I.** (a) Accounting and business management; farm bookkeeping and business forms; organization of a model farm from a financial point of view; marketing products; transportation and markets; household and personal accounts.

(b) Farm Arithmetic. Measurement of land and description of boundaries; measurement of lines, stocks, etc.; conversion of cubic measures into measures of weight and capacity; computation of inventories, bills, and pay rolls; dairy arithmetic, etc.

Secondary courses in Agriculture and Mechanic Arts; second year; Forestry; first year; first semester; two credits; two recitations.

F. **Business Methods II.** The general principles of common and statutory law are discussed and explained; special phases of law affecting the farm, such as titles to real estate, deeds, mortgages, county records, etc.; landlord and tenant; eminent domain, and right of way; water rights and boundaries; laws governing shopping, insurance, banking, etc.; court proceedings.

Secondary courses in Agriculture and Mechanic Arts; second year; Forestry; first year; second semester; two credits; two recitations.

1. **Office Facilities and Business Practice I.** This course is similar to course A, but considerably more work will be required for the same credit. Students who have completed courses A, B, C, and D may elect stenography instead of courses 1 and 2.

Freshman year; first semester; four credits; four laboratory periods.

2. **Office Facilities and Business Practice II.** This work is carried on between fellow students and commercial schools in the leading lines of business, affording excellent drill in correspondence and office practice.

The College maintains completely equipped offices in banking and wholesaling. On completion of the theoretical work and the business practice, the student is placed as manager of one of the offices and held responsible for all its operations.

Freshman year; second semester; four credits; four laboratory periods.

3. **Advanced Accounting and Business Management.** A thorough study of bank and advanced accounting and auditing. Va-

rious systems are studied and compared. Office practice and intercommunication work similar to that described under courses 1 and 2 form a part of this course; but here the student assumes the management of the office, while the routine work is done by less advanced students. Recitations, lectures, and reports.

Sophomore year; first semester; six credits; five laboratory periods.

4. **Corporation Accounting and Auditing.** (a) A practical application of previous courses in accounting and business management as applied to corporations. Manufacturing, railroading, and merchandising receive special attention.

(b) **Cost Accounting.** The theory and practice of cost accounting. The various methods used in England and America.

Sophomore year; second semester; six credits; five laboratory periods.

5. **Business Organizations and Management.** (a) Firms and Joint Stock Companies. A study of the internal management of a large business; the different duties of the various departments; the advantages of different methods of organization as regards economy and the preservation of good will. Value of trade-marks, patents, local interest, etc.

(b) Corporations. The growth of corporations; their causes and forms; the promotion, financiering, incorporation, and capitalization of corporate consolidation; their organization and securities; position and relation of stockholders and directors; receiverships and reorganizations.

Junior year; first semester; four credits; four recitations.

6. **Theory and Practice of Advertising.** A study of the fundamental principles of modern advertising. Special emphasis is given to the peculiarities of composition in newspaper and circular advertising, proof-reading, effectiveness of design, illustration, coloring, and display, follow-up systems, etc.

Junior year; second semester; four credits; four recitations.

7. **Public Accounting and Auditing I.** This is a research course under the direction of the professor in charge. Special stress is laid on preparation for Certified Public Accountancy. The course

embraces the following subjects: (1) a general course in analyzing accounts of various typical corporations, and the installation of systems best suited to the business in hand; (2) the solution and discussion of a series of difficult problems selected from C. P. A. examinations.

Elective; senior year; first semester; three credits; three recitations.

8. **Public Accounting and Auditing II.** The principles governing an audit of partnerships and corporations of any magnitude according to approved professional methods. The organization and methods of a typical firm of public auditors. The order of procedure in an actual audit. The auditor's reports and certificates. Actual audit of local concerns whenever practicable.

Elective; senior year; second semester; three credits; three recitations.

STENOGRAPHY.

A. **Theory and Practice of Stenography I.** (a) Gregg shorthand. This is an elementary course in the Gregg system of shorthand. The system is adapted perfectly to the hand, and enables the student to master the principles in a short time and to begin work from actual dictation early in the course.

(b) Touch typewriting. Beginning with simple exercises, the student learns correct fingering by the touch, or ''sightless'' method. Special attention is given to proper care and mechanism of the machine. The various standard makes of machines are studied and compared.

Second year; first semester; five credits; five laboratory periods.

B. **Theory and Practice of Stenography II.** A continuation of course 1, with special emphasis on the application of principles. Dictation, covering various lines of simple business correspondence, is given and must be transcribed on the machine.

Second year; second semester; five credits; five laboratory periods.

1. **Stenography I.** After a thorough mastery of the textbook, dictation and advanced letters are taken up. Great care is given to the arrangement and neatness of the transcribed notes. The

student will also be required to do some manifolding in connection with this course.

Sophomore year; first semester; six credits; five laboratory periods.

2. **Stenography II.** A continuation of course 1. In connection with this course, the student must also do some stencil work and become familiar with the mimeograph and neostyle.

Sophomore year; second semester; six credits; five laboratory periods.

3. **Advanced Stenography I.** (a) Reporting and office practice. After a thorough review of the textbook, various forms of correspondence, legal documents, speeches, specifications, editorial matter, court testimony, etc., are taken up. Each student will be called upon to serve as secretary to different members of the Faculty from two to four weeks during the last semester of his course.

(b) Typewriting, Manifolding, and Filing. An advanced course for those who specialize in stenography. In addition to the elementary principles given in Stenography A and B the student makes copies of correctly written correspondence, legal forms, etc.; also personal composition and dictation. Much time is devoted to manifolding and filing.

Junior year; first semester; four credits; four laboratory periods.

4. **Advanced Stenography II.** (Continued.)

Junior year; second semester; four credits; four laboratory periods.

5. **Reporting and Office Practice I.** Reports of lectures. The student is required to submit not less than twenty verbatim reports of lectures and addresses during the year. The reports must be properly transcribed and submitted to the teacher for approval.

Elective; senior year; first semester; three credits.

6. **Reporting and Office Practice II.** In this course the student is required to spend a large share of his time in the courts, and to render at least twenty verbatim reports, properly transcribed. A large amount of additional legal work will be required.

The finished work of the entire course must be passed on by the dean and the professor in charge.

Elective; senior year; second semester; three credits; three recitations.

7. **Typewriting III.**

Sophomore year; second semester; two credits; two laboratory periods.

POLITICAL ECONOMY.

1. **The Elements of Economics.** A discussion of wealth; nature and requisites of production; exchange and distribution; the relation of the production of raw material to manufacturing and exchange of products; diminishing returns from natural agents; labor and its increase; efficiency of production; credit, interest, wages, prices, and rent; taxation, public debt, free trade, and protection; money and banking; the labor problem and co-operation.

Sophomore year; first semester; three credits; three recitations.

2. **Commercial Geography.** The main topics treated are; natural conditions affecting commerce, human control of commerce, transportation and commercial routes; discussion of the leading countries of the world under the following heads: climate, natural features, distribution of leading products, vegetable food products, vegetable and animal fibres, wood crop, minerals, manufacture, agriculture, and such collateral topics as may be necessary to supplement the work outlined. This course presupposes a fair knowledge of mathematical and political geography, and of general history.

Sophomore year; second semester; three credits; three recitations.

3. **Money and Banking.**

(a) **Money.** Money as a commodity, coinage, legal tender, gold standard, International Monetary Conferences, colonial bills of credit, revolutionary bills of credit, greenbacks, Confederate currency, silver dollars, panic of 1893, present conditions and problems.

(b) **Banking.** Practice and legal principle of banking, methods of raising capital, modes of organizing national and state banks, trust and finance companies, clearing houses, their practice, regulations, and importance, resources of a bank, and modes of lending them, duties of directors, president, cashier, tellers, bookkeepers, etc., public and private examinations and audits.

Junior year; first semester; three credits; three recitations.

4. **Corporation and Public Finance.**

(a) **Funding Operations and Corporation Finance.** Money, funds, and credit, obtaining funds by inheritance, exchange, sales of commercial credit, long-time paper, etc. Funding operations by the United States Treasury; the savings bank, building and loan associations, commercial banks, trust companies, brokers, and insurance companies. The general practice of funding corporations and other large business enterprises.

(b) **Public Finance.** History of financial systems, theories of public expenditures, various methods and practices of taxation and other sources of income, public credit, relations of the Federal Treasury to our monetary system, the preparation of financial budgets and reports form an important part of this course.

Junior year; second semester; three credits; three recitations.

5. **Advanced Economics.** (a) Lectures and recitations. Three main purposes are kept in view in this course: a clear analysis of the mechanism, functions, and philosophy of industrial society; a discussion of the fundamentals of wealth and monopoly, their origin, uses, and abuses; a dispassionate discussion of economic topics that have become political questions. Much reading and many reports are required.

(b) **Research Course.** Special stress is laid on the economic history of the United States. Reading of reports and theses under the direction of the professor in charge.

Senior year; first semester; three credits; three recitations.

6. **History of Commerce.** (a) Trade. The development in Egypt, Greece, Rome, Florence, Mediaeval Europe, etc., down to and including the commercial nations of modern times. Special attention is given to materials and machinery of commerce to trade routes, and to the relations between commercial developments and other branches of the history of civilization. The principles of modern wholesaling and retailing are discussed, and a description given of brokerage, jobbing, the commission business, general and special stores, department stores, and mail order houses.

(b) Transportation. A study of the American railway system, the several branches of the railway service, and the questions of public aid and public control. A study of inland navigation and ocean shipping, with special reference to the United States. Lectures, assigned readings, and reports.

Senior year; second semester; three credits; three recitations.

7. **Production of Raw Materials.** A survey of latent commercial possibilities, surface indications, unexplored regions, probable demands upon the earth through future inventions; possible reclamation of inhospitable regions and of desert areas; effect of known latent resources upon the expectations and policies of mankind. Present resources of leading nations are then considered, together with their influence upon trade routes. Agriculture, Forestry, Mining, and Fishing receive special attention.

Elective; junior or senior year; first semester; three credits; three recitations.

8. **Manufacturing.** A study of manufacturing processes through which such commodities as wheat, cotton, sugar beets, tobacco, and lumber pass, in going from the producer to the consumer. The work in indirect production considers cotton and woolen goods, steel, boots and shoes, etc. The history, development, and economic effects of labor-saving inventions.

Elective; junior or senior year; second semester; three credits; three recitations.

9. **Insurance.** Origin, purpose, development and growth of the various kinds of insurance, especially Fire, Life, and Casualty; the various plans, policies, and rates will be discussed; computation of tables, and the various phases of actuarial practice will receive attention.

Elective; junior or senior years; first semester; three credits; three recitations.

10. **Rural Economics.** (a) The fundamental principles of Production, Distribution, and Exchange, with special reference to rural life.

The financial management of the farm receives special attention.

(b) **Rural Law.** (See Political Science 6.)

The course in Agriculture; sophomore year; second semester; three credits.

POLITICAL SCIENCE.

A. **Civil Government and Administration.** (a) Civil Government. Our European ancestors; origin of states and state institutions. English and American governments compared; federal and state constitutions; state and foreign service; the executive departments; federal and state powers; political parties and issues. (b) Federal and State Administration. A survey of the administrative activities of federal, state, and municipal governments; governments from the sociological point of view. The financial operations, preparation of budgets and reports, will be considered.

Secondary course; second year; first semester; two credits; two recitations.

B. **Elementary Commercial Law I.** An elementary course, covering the law of contracts; negotiable instruments; agents; partnership, real estate, etc. Adapted for students with limited preparation.

Secondary course; second year; second semester; three credits; three recitations.

C. **Elementary Commercial Law II.**

Secondary course in Forestry; second year; second semester; two credits; two recitations.

1. **Commercial Law I.** (a) Contracts in General. Formation of contracts; offer, acceptance, form, and consideration; competence of parties, consent, and legality of subject matter. Operation of contracts, including limit of obligations and assignments; interpretation, rules of evidence and construction; discharge of contracts; the agreement performance, breach of contract, etc.

(b) Negotiable instruments. Maker's, acceptor's, drawer's, and indorser's contracts; proceedings before, upon, and after dishonor; proceedings in protesting; accommodation papers; grantor and surety; holder's position, defense, equities, agency insurance, etc.

Senior year; first semester; three credits; three recitations.

2. **Commercial Law II.** (c) Partnership Law. Formation of

partnerships, essentials, liability of members, capital, profits, goodwill, individual and firm property; agency for partners; dissolution, winding up, priority of distribution, etc.

(d) Corporation Law. Kinds, formation, powers, liabilities, ownership, shares, subscription, calls, notice, transfers, management, officers, directors, contractional powers, dividends, dissolution, are discussed fully from the legal point of view. The Case method is used throughout the entire course. Lectures, discussions, and reports.

Senior year; second semester; three credits; three recitations.

3. **Constitutional Law and Politics.** (a) Constitutional Law. The Constitution; rise of the American Union; distribution and powers of the Government; powers of Congress; powers of the executive; the judicial departments; checks and balances of governments; governments of territories and colonies; admission of new states; amendments to the Constitution; civil rights and their guarantees; protection of persons accused of crimes; protection of contracts and property, etc. Lectures, readings, reports and thesis.

(b) American Politics. Origin of political parties in the United States; changes, growth and development; party platforms.

Elective for juniors and seniors; first semester; three credits; three recitations.

4. **Comparative Study of Governments.** A comparative study of the various systems of government; Greece, Rome, Great Britain, Germany, France, Switzerland, and the United States.

Elective for seniors; second semester; three credits; three recitations.

5. **International Law.** Persons concerned; rights and duties of states; territorial jurisdiction; jurisdiction on the high seas; agents of the state treaties; settlements of disputes; war and its effects; military occupation; neutrality, contraband, blockades, etc.

Elective for seniors; second semester; three credits; three recitations.

6. **Rural Law.** The general principles of common and statutory law are discussed and explained. Special phases of law affecting the farm, such as titles to real estate, deeds, mortgages, etc.; landlord and tenant; eminent domain, and rights of way; water

rights, and boundaries; laws governing shipping, insurance, banking, etc.; court proceedings.

Part of Economics 10; one credit if taken alone. Given in connection with Rural Economics; second third of second semester.

7. **International Trade and Transportation.** (a) Commercial Treaties. An historical and critical study of important commercial treaties; protective tariffs, and the theory of reciprocity; a survey of the chief questions connected with the history of our foreign relations from the appointment of the Committee on Foreign Relations in The Continental Congress to the present time.

(b) The Consular Service. The growth and importance of the consular service; the appointment, distribution, duties, and necessary qualifications of consuls. Studies and discussions of consular reports.

(c) International Transportation. The course deals especially with the merchant marine of the principal nations of the world. Importance of ship subsidies, inland, waterways, canals, etc.

Elective; junior or senior year; second semester; four credits; four recitations.

Thesis: A thesis will be required in each of the elective courses. An additional credit may be earned in certain courses by writing a thesis on an approved subject. The subject must be announced by the dean to the College Council during the first semester, and a finished copy must be in the hands of the professor in charge not later than May 1st. When approved, a bound (either typewritten or printed) copy must be deposited in the College Library.

Special Lectures. A series of lectures on practical business subjects will be given during the year by prominent business men of the State. Following is a tentative list of subjects during the present year: Present Problems in Finance; Organization of a Bank; Oraganization of a Railroad; Organization of a Department Store; The Fishing Industry of Oregon; The Lumber Industry of Oregon; The Business Side of Farming; Commercial Expansion of the United States; Duties and Responsibilities of the Public Accountant; Captains of Industry; The Industrial Manager; Duties and Responsibilities of the Bank Cashier; Education for Business; The Power of Advertising.

PENMANSHIP.

A. **Penmanship I.** Students entering the first year are expected to have acquired a good hand in the grades, but considerable time is devoted during the first year to mastering the best form of business writing and lettering.

Secondary course; first year; first semester; one credit; two practice periods.

B. **Penmanship II.** A continuation of course A.

Second semester; one credit; two practice periods.

1. **Advanced Penmanship I.** Special emphasis is laid on rapid business writing, correct forms of business papers, lettering and designing.

Freshman year; first semester; one credit; two practice periods.

2. **Advanced Penmanship II.** A continuation of course I.

Second semester; one credit; two practice periods. Required of all commercial students; elective to others.

PHARMACY.

Professor McKellips.
Mr. Callaway.

1. **General Pharmacy I.** This course is a general introduction to the subject of Pharmacy, given by means of a series of lectures wherein the student is made familiar with the conditions which led to the origin of the practice of Pharmacy as a profession separate and distinct from that of medicine. Attention is directed to the purposes of the profession, to the scientific principles underlying it, and to the proper means for comprehending these facts with a view to their intelligent application. The drugs, chemicals, and prepared medicines of the U. S. Pharmacopoeia are made the subject of a series of recitations.

Junior year; first semester; two credits; two recitations.

2. **Nomenclature.** The Latin language is universally recognized as the language of science. The names of all plants and animals and of many natural objects in the material world are recorded in this language. These Latin names, in so far as they have connection with the profession of pharmacy, are made the subject of systematic study.

Junior year; first semester; one credit; one recitation.

3. **Pharmacognosy I.** This subject deals with the scientific classification of the plants and animals which furnish the crude drugs used in pharmacy. The relation existing between the various drugs is shown, and the student is thoroughly drilled in memorizing the classification and in learning from what part of the world the drugs are obtained. He is instructed as to what particular portion of the plant or animal finds use in medicine and learns to recognize by some physical characteristic—appearance, odor, taste, etc.—samples of all the important drugs. Extensive cabinets of sample drugs are kept for this purpose.

Junior year; first semester; one credit; one recitation.

4. **Pharmacognosy II.** Continuation of Course 3.

Junior year; second semester; two credits; two recitations.

5. **Therapeutics and Doses.** The definition of medical and erapeutical terms, the classification of medicines into groups cording to their therapeutical action, and the consideration of e subject of dosage, are matters to which the attention of the udent is directed at this time.

Junior year; first semester; two credits; two recitations.

6. **General Pharmacy II.** A continuation of Pharmacy 1, to hich is added the feature of laboratory practice. The student kes up the various classes of pharmaceutical preparations and ecomes familiar with the correct manner of their manufacture.

Experience has demonstrated the value of the laboratory as a ctor in technical and scientific education. For this reason e course in pharmacy as offered at this institution is one in hich this feature is given unusual prominence.

From crude drugs, as barks, leaves, roots, and seeds, the student anufactures finished pharmaceuticals, such as tinctures, fluid tracts, elixirs, tablets, pills, etc.

Using the United States Pharmacopoeia as a laboratory manual, e student has the official requirements for purity and strength nstantly before him, his attention thus being directed to these atters in a practical way.

Junior year; second semester; four credits; one recitation; three boratory periods.

7. **General Pharmacy III.** A continuation of course 6, in which e manufacture of the more difficult pharmaceuticals is taken up. ttention is given to the higher class of toilet preparations, as well to galenicals.

Senior year; first semester; two credits; two laboratory periods.

8. **Materia Medica and Toxicology I.** As indicated by the ame, this course is devoted to the study of ''Medicinal Materials.'' ll substances which find general use in medicine are here given ttention. All are classified with respect to the action they have pon the human system. Crude drugs are grouped according to the lant constituents—alkaloids, glucosides, volatile oils, oleoresins, tc.—which they contain. Pharmaceutical preparations are studied ith respect to composition and strength; chemicals, according to lubility, medicinal activity, and incompatibility.

The student is drilled in the recognition of pharmaceutical preparations and of chemicals. The many common names, or synonyms, in use in connection with materia medica are memorized.

One hour a week is devoted to the consideration of Toxicology. The different classes of poisons—caustics, iritants, convulsants, paralysants, narcotics, asphyxiants, etc.—are taken up and studied according to the characteristic symptoms they produce, the method of counteracting and preventing their harmful effects, and the antidote peculiar to each. This course is especially designed to meet the needs of the pharmacist. Provisions of the law regulating the sale of poisons within the state are explained in detail.

Senior year; first semester; three credits; three recitations.

9. **Materia Medica and Toxicology II.** A continuation of course 8.

Senior year; second semester; three credits; three recitations.

10. **Prescription Practice I.** This work is sometimes spoken of as ''extemporaneous pharmacy,'' and is justly regarded as the division of the profession belonging to the expert. The ability to compound, properly, intricate formulas at a moment's notice, is an art that can be acquired only by persistent study and painstaking practice. Opportunity for practice of this nature is here given. Prescriptions written by practicing physicians in various parts of the country have been collected. These afford the student practice in reading, itself often a matter of difficulty. Prescriptions presenting various types of incompatibility are compounded, as are others which afford experience in overcoming manipulative difficulties.

Senior year; first semester; three credits; three recitations.

11. **Prescription Practice II.** A continuation of course 10.

Senior year; second semester; five credits; two recitations; three laboratory periods.

ZOOLOGY, ENTOMOLOGY, AND PHYSIOLOGY.

Professor Cordley.
Miss Edwards.
Mr. ——————

The instruction in this department is designed to give a general survey of the field of Zoology. It aims to develop an interest in the study of native birds, insects and animals, their relation to the plant world, to each other and to man's welfare. By means of lectures, laboratory work, and field observations, the student becomes familiar with the structure and habits of a few representative forms, learns something of their relationships and of the relative economic importance of the various groups and of the biological laws which govern their development. The work is adapted so far as possible to the particular needs of students in Agriculture and Domestic Science and Art. Exceptional opportunities are offered to those who desire to teach Physiology or Nature Study in the public schools. In connection with the courses in Pharmacy, the required work forms a valuable pre-medical course.

The instruction in General and Economic Entomology is intended to provide the student with sufficient training to enable him to dentify the common insect pests, understand their habits and life-histories, and apply the most approved methods for their control. The lectures upon Crop Pests also deal with the principal insect diseases of crops and their control.

Advanced students in Entomology are provided with excellent opportunities for special instruction and research work.

The laboratories of the department occupy seven rooms on the third floor of Agricultural Hall and are well supplied with apparatus, reference books, bulletins, periodicals and collections.

1. **Zoology I.** A field and laboratory study of invertebrate animals. The work begins with the study of the single-celled forms, since it is believed that the student can thus best gain the desired conception of the origin of the activities of higher animals. Consideration is likewise given to the economic importance of these

low forms, and their relation to certain diseases of men and o domestic animals. Particular attention is given to the habits o animals, parasitic upon man or upon domestic animals, such as th liver-fluke, tape-worms, trichina and other nematodes; to thos which attack cultivated plants like the nematode root-worms, mite insects, etc.; and to those having food value, i. e., clams, oyster crawfish, shrimps, crabs, and lobsters. Such other types are studie as are considered necessary to give the student a proper perspectiv of the invertebrates as a whole and to illustrate various biologica laws.

The courses in Agriculture, Commerce, Forestry, and Pharmacy sophomore year; first semester; three credits; one recitation; tw laboratory periods.

2. **Zoology II.** A continuation of course 1, but dealing wit such vertebrate types as amphioxus, lamprey, fishes, frogs, snake birds, and mammals. Together with course 1, it is designed t give the student a general idea of the animal kingdom as a whole and of the relative economic importance of the various groups.

The courses in Agriculture, Commerce, Forestry, and Pharmacy sophomore year; second semester; three credits; one recitation two laboratory periods.

3. **Zoology III.** A brief course designed to give the student in Domestic Science and Arts some conception of the structur and physiological activities of animals, as a basis for the wor in physiology and hygiene. Particular attention is also given t those forms, such as the housefly and mosquito, which are of importance from the standpoint of public and private sanitation.

The course in Domestic Science and Art; sophomore year; secon semester; three credits; two recitations; one laboratory period.

4. **Physiology and Hygiene I.** This course includes a study o the chief functions of the human body and of the principles o hygiene. As a foundation for the study of function, the laborator course includes some work upon the gross anatomy and th histology of the various tissues and organs of a typical mammal It also includes experiments and demonstrations with foods as th source of energy, their digestion and absorption, the compositio

and circulation of the blood, nerve-muscle reactions, etc. Special emphasis is placed upon the relation of pure air, mental and physical habits, food, dress, bathing, work, and recreation to health and work capacity.

The course in Domestic Science and Art; junior year; and the course in Pharmacy; sophomore year; first semester; three credits; one lecture; two laboratory periods. Elective in the course in Agriculture.

5. **Physiology and Hygiene II.** A continuation of course 4. Courses 4 and 5 are especially valuable to those who expect to teach physiology in the public schools, and in connection with the work in Pharmacy, form a valuable pre-medical course.

The course in Domestic Science and Art; junior year; and the course in Pharmacy; sophomore year; second semester; three credits; one recitation; two laboratory periods. Elective in the course in Agriculture.

6. **Physiology of Domestic Animals I.** A study of the physiology of the sheep, ox, horse, and swine, with special reference to the problems of care, feeding and breeding, giving the physiological basis of the technical study of these subjects. The sheep is dissected to give the necessary knowledge of anatomy, and the important organs of each type are studied where important differences exist.

Elective in the course in Agriculture; junior year; first semester; three credits; one recitation; two laboratory periods.

7. **Physiology of Domestic Animals II.** A continuation of course 6.

Elective in the course in Agriculture; junior year; second semester; three credits; one recitation; two laboratory periods.

8. **Introductory Entomology.** An introduction to the study of insects by lectures, laboratory and field exercises. The laboratory work consists of a preliminary study of the anatomy of the grasshopper with comparative work upon other types. Sufficient field work in collecting, and laboratory work in properly mounting and classifying insects, is provided to make the student familiar with the principal orders of insects. In this and succeeding courses in

Entomology the rearing of economic and other forms is carried on parallel with other work to gain familiarity with the development and habits of insects. Each student is required to familiarize himself with the life history, habits and means of controlling some insect of economic importance.

Elective in the courses in Agriculture and Domestic Science and Art; required in Forestry; junior or senior year; first semester; three credits; one recitation; two laboratory periods.

Students taking major work in Entomology will add two additional laboratory periods.

9. **Entomology of Orchard and Small Fruits.** An intensive study of the more important insect enemies of the apple, pear, prune, plum, cherry, currant, gooseberry, bramble fruits and strawberry, and the critical examination of the methods to be employed in combating them. Each important pest will be studied in the field and laboratory with the view to become thoroughly familiar with the appearance of the insect and its work in all its stages of development.

Elective in the course in Agriculture; junior or senior year; second semester; three credits; two recitations; one laboratory period.

Prerequisite: Zoology 7.

10. **Entomology of Truck and Field Crops.** A similar intensive study of the insect enemies of celery, onion, beets, cabbage, kale, clover, vetch, potato, hops, corn, wheat, and oats.

Elective in the course in Agriculture; junior or senior year; second semester; three credits; two recitations; one laboratory period.

Prerequisite: Zoology 7.

11. **Forest Entomology.** A study of the insects destructive to forest trees and forest products, and the insect enemies of reforestation and the measures by which the injuries may be avoided or reduced.

The course in Forestry; junior year; second semester; three credits; two recitations; one laboratory period.

Prerequisite: Zoology 7.

12. **Advanced Entomology I.** This course is designed for those who desire to specialize in Entomology. The instruction includes lectures and reference reading upon the biology of the principal families of insects, supplemented by laboratory studies of typical life-histories. Considerable time is devoted to studying the habits of insects, particularly injurious species, in the field; to collecting, rearing, mounting, and classifying them; and to becoming familiar with entomological methods and literature.

Elective in the courses in Agriculture and Domestic Science and Art; junior year; second semester; five credits; two recitations; three laboratory periods.

13. **Advanced Entomology II.** A continuation of course 11.

Elective in the courses in Agriculture and Domestic Science and Art; senior year; first semester; five credits; two recitations; three laboratory periods.

14. **Advanced Entomology III.** A continuation of courses 11 and 12.

Elective in the courses in Agriculture and Domestic Science and Art; senior year; second semester; five credits; two recitations; three laboratory periods.

In connection with courses 11, 12 and 13, the student will be required to present a thesis detailing the results of a systematic study of some restricted group of insects or of the biology of some particular species or group of species.

15. **Beekeeping I.** A brief course in the principles of beekeeping with practical work in the apiary. Special attention will be given to the relations between beekeeping and orcharding.

Elective in the courses in Agriculture and Domestic Science and Art; first semester; one credit; one laboratory period.

16. **Beekeeping II.** A continuation of course 15.

Elective in the courses in Agriculture and Domestic Science and Art; second semester; one credit; one laboratory period.

17. **Animal Parasites.** A course of lectures, demonstrations, and collateral reading upon the principal parasites of domestic animals, such as the liver-fluke, tape-worms, stomach worms, hook worms,

ticks, scab, mites, lice, flies and bots, and the means of preventing infestation and reducing injury from these pests.

Elective in the course of Agriculture; junior or senior year; second semester; one credit; one recitation.

Prerequisites: Zoology 1 and 2.

Offered in 1912.

18. **Embryology.** A study of the development of the chick designed particularly to make the student more proficient in microscopical methods, such as killing, fixing, imbedding, sectioning, staining, reconstruction from serial sections.

Elective in the courses in Agriculture and Domestic Science and Art; junior or senior year; second semester; three credits; one recitation; two laboratory periods.

19. **Game Breeding and Protection.** A laboratory and reading course in the study of the best methods of stocking forest tracts and their waters with game fishes, birds and mammals; the breeding habits, propagation and protection of game; the recognition of the more important game fishes, birds, and mammals; together with a critical study of the laws of the various states relating to game.

Course in Forestry; junior or senior year; first semester; one credit; one laboratory period.

Offered in 1912.

20. **Seminar I.** Senior and graduate students in Entomology. Reading, discussing and abstracting the leading articles upon Entomology as they appear in the scientific journals, horticultural press, current magazines and experiment station literature.

Senior year; first semester; one credit.

21. **Seminar II.** A continuation of course 20.

Senior year; second semester; one credit.

Any of the above courses may be elected as a minor upon consultation with the instructor. Students electing major work for a degree in this department will be required to take courses 1, 2, and 3 and to carry an equivalent of five credits throughout the junior and senior years. Graduate courses leading to the Master's degree may be arranged for upon consultation with the head of the department and the Committee on Advanced Degrees.

CHEMISTRY.

Professor Fulton.
Mr. Harding.
Mr. Brodie.
Mr. Daughters.

The beginners' courses, Chemistry 1, 2, and 3, consist essentially of the proof of some of the well known chemical laws, such as the law of conservation of matter, the law of definite proportions and of multiple proportions, the Law of Boyle, and the Law of Charles. The student attains skill in the manipulation of apparatus, and in the management of equipment in general. From this elementary work he proceeds to qualitative analysis, in the study of which he is taught to separate and identify the different elements composing the mass, and, in the case of metals, to learn of their properties, their uses, the different methods of obtaining them from their ores, and the combinations in which they occur in nature.

If he has shown suitable proficiency, he advances to quantitative analysis, which is the determination of the amounts of the ingredients. He is taught both methods of analysis, volumetric, or the method by solution, and the gravimetric, or the method by precipitation and weighing. On completing these courses, the student is fairly well prepared to take up advanced work in any particular line. He can proceed in agricultural chemistry, which treats of the analysis of soils, manures, cattle foods, dairy products, etc., or he can take up the subject from the inorganic side in the analysis of minerals, fuels, oils, gas, etc., or he can view it from the pharmacist's standpoint, in analyzing drugs. And, finally, as a graduate student, he may proceed intelligently along original lines of study and research.

1. **General Chemistry I.** This course deals with the general principles of the science and extends through the divisions known as the non-metals.

All Degree courses except Domestic Science and Art; freshman year; first semester; four credits; two recitations; two laboratory periods.

2. **General Chemistry II.** Descriptive. This is a continuation of course 1.

All Degree courses except Domestic Science and Art; freshman year; second semester; four credits; two recitations; two laboratory periods.

3. **General Chemistry III.** This course is arranged especially for the students of the department of Domestic Science and Art.

Freshman year; first semester; four credits; two recitations; two laboratory periods.

4. **Elementary Organic Chemistry.** This is a brief course in Organic Chemistry, and is provided for the students of the department of Domestic Science and Art.

Freshman year; second semester; four credits; two recitations; two laboratory periods.

5. **Qualitative Analysis I.** This course consists largely of laboratory practice in the ordinary processes of separating and identifying *ions*.

The course in Pharmacy; sophomore year; first semester; four credits; one recitation; three laboratory periods.

6. **Qualitative Analysis II.** A course provided for mining students.

Sophomore year; first semester; three credits; three laboratory periods.

7. **Quantitative Analysis I.** This is a course designed for students in Pharmacy, and consists of instruction in both gravimetric and volumetric analysis of pharmaceutical products.

Junior year; first semester; three credits; one recitation; two laboratory periods.

8. **Quantitative Analysis II.** This is a course in analysis for Mining students, and consists of gravimetric analysis of limestones, iron, lead, zinc, arsenic and antimony ores, coal, and as much of other work as time will permit.

Sophomore year; second semester; three credits; one recitation; two laboratory periods.

9. **Organic Chemistry.** This course consists of the study of the more typical and simple organic compounds and is designed for

Pharmacy, and such students of Agriculture as desire to take up Physiological Chemistry, and Veterinary Science.

Sophomore year; second semester; four credits; two recitations; two laboratory periods.

10. **Agricultural Chemistry I.** A course consisting of lectures, recitations, and laboratory work, dealing with the more important phases of Chemistry as related to Agriculture.

The course in Agriculture; sophomore year; first semester; two and one-half credits; one recitation; one and one-half laboratory periods.

11. **Agricultural Chemistry II.** A continuation of course 10.

The course in Agriculture; sophomore year; second semester; two and one-half credits; one recitation; one and one-half laboratory periods.

12. **Pharmaceutical Analysis.** This is an extension of Quantitative Analysis II, dealing with the determination of alkaloidal drugs and galenical preparations.

Junior year; first semester; three credits; one recitation; two laboratory periods.

13. **Urinalysis and Toxicology.** This course is for Pharmacy students, and consists of the chemical examination of urine, and the methods of identifying the alkaloidal and mineral poisons.

Elective; course in Pharmacy; senior year; first semester; three credits; one recitation; two laboratory periods.

14. **Chemistry of Foods.** An advanced course for the students of the School of Domestic Science and Art, consisting of practice in the best methods as applied in food analysis, and in detection of common adulterants. Opportunities for research work will be given if desired.

The course in Domestic Science and Art; sophomore year; first semester; four credits; one recitation; three laboratory periods.

15. **Chemistry for Engineers.** This course is particularly for students in Mechanical and Electrical Engineering. It consists of the analysis of coal, oil, gas, and of their calorific powers; also the technical analysis of flue gases.

Elective; junior or senior year; second semester; two credits; two laboratory periods.

16. **Electro-Chemistry.** This is a course for advanced Mining students, and consists of the application of the electric current to solutions of the different metals in metallurgical analysis.

Elective; junior or senior year; first semester; two credits; two laboratory periods.

17. **Chemistry of Commerce.** A practical study of the chemical processes involved in the production of various commodities, including iron, steel, copper, and other metals; soaps, dyes, paints, and the like. The course is intended to familiarize the student with the application of chemistry to modern industries.

Elective; course in Commerce; junior or senior year; either semester; three credits; three recitations.

18. **Mineral Analysis.** This course may be taken by any one desiring advanced work in Quantitative Analysis. It consists of the theoretical and practical study of the most approved methods of determining the composition of complex compounds. Time: to be arranged.

Elective; junior or senior year; either semester; four credits; one recitation; three laboratory periods.

BACTERIOLOGY.

Professor Pernot.
Mr. DeHaven.

The science of bacteriology has reached a stage in its development where it is within the reach of all students taking a collegiate course. A knowledge of the subject has heretofore been confined principally to the medical profession; but since its relation to agriculture and the domestic arts has become better understood, the teaching of the subject has been added to the curriculum of higher institutions of learning.

Bacteria play such an important role in the economy of nature, and are so closely associated with our every-day lives, both in health and disease, that it becomes essential for a modern student to acquire a knowledge of what bacteria are and what they do. This College has a well-equipped bacteriological laboratory for the investigation and study of bacteria in all their relations to the industries.

1. **Elementary Bacteriology** consists of a series of lectures and laboratory demonstrations to familiarize the students with the underlying principles of bacteriology as applied to every-day life.

The course in Agriculture; sophomore year; first semester; one credit; one recitation.

2. **Major Bacteriology.** Beginning with the first semester of the junior year, a student may take bacteriology through the two semesters of that year, then continue advanced work through the two semesters of the senior year. The subject is first studied theoretically to prepare the student for subsequent work.

Elective; junior year; first semester; five credits; five recitations.

3. **Laboratory Practice.** A continuation of course 2. The laboratory work begins by familiarizing the student with all bacteriological apparatus and its use, then gradually advancing into making culture media; filling and plugging tubes; sterilizing; plate culture work; study of colonies; planting on various media; study of morphology and classification.

Elective; junior year; second semester; five credits; five laboratory periods.

4. **General Bacteriology.** This is the regular, required course in Bacteriology for Pharmacy students, fitting them to carry on any ordinary bacteriological work. The course is a series of recitations and lectures covering the subject in a theoretical way.

The course in Pharmacy; senior year; first semester; three credits; three recitations.

5. **Practical Bacteriology** is a continuation of general bacteriology. It is a course in practical laboratory work in making culture media; plate cultures; a study of colonies; planting on various media; quantitative analysis; classification; examination of pathological specimens; examination of sputum.

The course in Pharmacy; senior year; second semester; three credits; one recitation; two laboratory periods.

6. **Bacteriology I.** This course deals with the sanitation of the home; water supply; sewers and drains; ventilation and hygiene of the sick room.

Course in Domestic Science and Art; senior year; first semester; three credits; three recitations.

7. **Bacteriology II.** This course relates to the study of yeasts; fermentation; principles of canning; care of milk and food; utilization of waste products; vinegar making; preservation of meats.

Course in Domestic Science and Art; senior year; second semester; three credits; three laboratory periods.

8. **Dairy Bacteriology.** This is the study of bacteria in their relation to milk and milk products. The course considers the source of invasion; reaction upon milk; control of growth; usefulness of certain varieties.

Elective; senior year first semester; two credits; two recitations.

9. **Economic Bacteriology.** This course treats of the economic use of pure cultures of micro-organisms in butter-making; methods of perpetuating pure cultures for starters; controlling flavor of cheese by the use of pure cultures of selected organisms; enzymes in curing cheese; preserving cheese and butter; laboratory demonstrations in detecting pathogenic bacteria in milk, impure milk, and milk from diseased cows.

Elective; senior year; second semester; two credits; two recitations.

10. **Soil Bacteriology.** A course of lectures and recitations in the general subject relating to micro-organisms of the soil, nitrifying germs of the legumes, how cultivated and used in inoculating, care of the organisms in the soil, value of organisms in manure.

Elective; senior year; first semester; two credits; two recitations.

11. **Pathological Bacteriology.** This is a study of pathogenic bacteria infecting domestic animals. The course includes a consideration of laboratory demonstrations with guinea pigs inoculated with infectious organisms; symptoms and lesions formed; infection and contagion; principles of immunity.

Elective; senior year; second semester; two credits; two laboratory periods.

12. **Technical Bacteriology.** A course of lectures and laboratory work in pathogenic germ diseases of live stock and poultry. Topics for consideration are a study of vaccines; their manufacture and use; nitrifying bacteria of leguminous plants; bacteria in the soil; bacteriological analysis of water.

Elective; senior year; first semester; five credits; one recitation; four laboratory periods.

13. **Advanced Bacteriology.** This course includes advanced work along the lines of original investigation; pathological bacteriology; experimental bacteriology; sanitation; immunity and prevention of disease; use and application of antiseptics; practical disinfection.

Elective; senior year; second semester; one recitation; four laboratory periods.

14. **Thesis Bacteriology.** A thesis may be selected in this subject, beginning with the first semester, junior year, major bacteriology, and continuing through four semesters.

Elective; junior and senior year; two credits for each semester.

All theses must be the result of original investigations.

The major course equals a course in bacteriology in any of the medical schools, and is recommended to those students who contemplate studying medicine, dentistry, or professional nursing.

BOTANY AND PLANT PATHOLOGY.

Professor Jackson.
Mr. Lawrence.
Mr. Griffin.
Miss Gilkey.

The courses offered in the department of Botany and Plant Pathology aim not only to give the student a broad knowledge of plants, their structure, activities and relationships; but to show wherein the science of Botany is related to the problem of every-day life and the home, and to the practice of Agriculture, Pharmacy, Forestry, and Domestic Science and Art.

In the arrangement of work in the courses offered, the point of view of the several groups of students is kept constantly in mind and the work adapted to their needs. In order to make this possible in courses taken by students pursuing different lines of work, separate sections are provided.

The work of the department is carried on by means of recitations, lectures and laboratory work. Texts and reference books are used mainly as an aid in correlating the facts brought out in the study of the plants in the laboratory. Living plants are used wherever possible. Drawing is made an important feature of the laboratory work, because the student, in order to draw accurately, must have observed clearly.

Particular attention is given to students desiring to take their major work in this department. Exceptional opportunities are offered to students who wish to prepare themselves for teaching Nature Study and Botany in the public schools and to those who wish to specialize in Botany and Plant Pathology preparatory for investigation work.

A. **Essentials of Botany I.** This course provides an introduction to Plant Life and deals with the nature of plants; their structure; how plants grow and are propagated; how plants absorb and manufacture food; their relation to each other and to their environment; kinds of plants, etc.

Throughout the course the relations of Botanical Science to every-day life, to household science, home gardening, etc., will be emphasized.

The Secondary course in Domestic Science and Art; second year; first semester; two credits; one recitation; one laboratory period.

B. **Essentials of Botany II.** A continuation of Botany A.

The Secondary course in Domestic Science and Art; second year; second semester; two credits; one recitation; one laboratory period.

C. **Plant Relations.** A study of plants in their mutual relationships, their relations to animal life and to man, and to their physical environment.

The Secondary courses in Agriculture, Commerce, and Forestry; second year; second semester; two credits; two recitations.

1. **Principles of Botany I.** This course aims to present in a broad laboratory course the fundamental principles of Botany. The higher plants are first traced in their development from the seed to flower, special effort being made to correlate the study of morphology, histology, and physiology of the various parts. The morphology, evolution, and classification of plants will then be traced from lower to higher forms. Finally, the relation of plants to their environment and their use in nature and to man will be studied. Throughout the course the economic relations of botanical study will be emphasized. The work will be adapted in the several sections to meet the needs of the several groups of students.

The courses in Agriculture, Forestry, Pharmacy, and Domestic Science and Art; freshman year; first semester; three credits; one recitation; two laboratory periods.

2. **Principles of Botany II.** A continuation of Botany 1.

The courses in Agriculture, Forestry, Pharmacy, and Domestic Science and Art; freshman year; second semester; three credits; one recitation; two laboratory periods.

Note.—Botany 1 and 2 are required as a prerequisite for all the following courses.

3. **Plant Histology.** This is a course dealing with the microscopic structure of plants. A study of the cell, cell contents, and the types of tissues will be made. Students will become familiar with the technique of preparing permanent microscopic slides free hand, and with the aid of the microtome.

(a) Arranged to meet the needs of Forestry students leading to the study of Forest Technology. Special attention will be given to the structure of woods.

The course in Forestry; sophomore year; first semester; three credits; one recitation; two laboratory periods.

(b) Arranged to meet the needs of Pharmacy students as a preparation for more advanced work in the microscopic study of crude drugs and their adulteration.

The course in Pharmacy; sophomore year; first semester; three credits; one recitation; two laboratory periods.

4. **Morphology and Taxonomy of Seed Plants.** Designed to meet the needs of a study of Special Morphology and Taxonomy of Seed Plants by Pharmacy and Forestry students.

(a) Adapted especially to the requirements of Forestry students. The morphology and taxonomy of Gymnosperms and Angiosperms will be studied. Special attention will be given to a study of the plant families making up the forest flora.

The course in Forestry; sophomore year; second semester; three credits; one recitation; two laboratory periods.

(b) Adapted to the needs of the students in Pharmacy. The student will be made familiar with the morphology and relationships of the plant families containing medicinal plants leading to the study of Pharmacognosy.

The course in Pharmacy; sophomore year; second semester; three credits; one recitation; two laboratory periods.

5. **Agricultural Botany.** This course presents to Agricultural students the fundamental botanical principles underlying Agricultural Practice and serves as an introduction to advanced work in Plant Physiology, Plant Breeding, Systematic Pomology and Olericulture, Agrostology, etc. The laboratory work will consist largely of a morphological and taxonomic study of agricultural plants.

The course in Agriculture; sophomore year; second semester; three credits; one recitation; two laboratory periods.

6. **Plant Physiology I.** An advanced course in Experimental Plant Physiology. The student is taught by lectures and actual experiments the physiology of crop production. The discussion and experiments cover such topics as absorption, photosynthesis, digestion, respiration, translocation, growth, reproduction, irritability, etc.

Designed to meet the needs of students in Agriculture and Forestry; elective; junior or senior year; first semester; three credits; one recitation; two laboratory periods.

7. **Plant Physiology II.** A continuation of course 6.

Elective; junior or senior year; second semester; three credits; one recitation; two laboratory periods.

8. **Principles of Plant Pathology.** The following are some of the topics to which attention is given in this course, the causes of disease in plants; the principles of plant disease control; fungicides and their use; dissemination and geographical distribution of plant diseases; their economic importance; disease resistance; methods of culture of parasitic fungi and bacteria, etc. In the laboratory opportunity will be given for the study of plant diseases producing organisms and their botanical relationship, methods of inoculation, etc.

Elective in the course in Forestry; junior year; in the course in Agriculture; junior or senior year; first semester; three credits; one recitation; two laboratory periods.

Note.—Preparatory for, and required as a prerequisite to, Botany 9, 10, 11.

9. **Diseases of Tree and Small Fruits.** A detailed study will be made of the cause and control of all the important fungous, bacterial and physiological diseases. Particular attention will be given to the diseases of those trees and small fruit crops of importance in the Northwest. The laboratory work will include a careful study of the gross appearance and the effect on the host of various diseases as well as a microscopic study of the organisms causing the trouble and their relation to the tissues of the host.

Designed primarily for students specializing in Horticulture.

Elective; junior or senior year; second semester; three credits; one recitation; two laboratory periods.

10. **Diseases of Vegetable and Field Crops.** This course is similar in general to Botany 9, but deals with diseases of vegetable and field crops.

Elective; junior or senior year; second semester; three credits; one or two recitations; one or two laboratory periods at the discretion of the instructor.

11. **Diseases of Forest and Shade Trees.** A study of the diseases of forest and shade trees and of the decay of structural timber is taken up in this course. Designed to meet the needs of students in Forestry and Landscape Gardening.

Elective in the course in Forestry; junior year; in the course in Agriculture; junior or senior year; second semester; three credits; one or two recitations; one or two laboratory periods at the discretion of the instructor.

12. **Taxonomic Study of Farm Weeds and Grasses.** This course aims to familiarize the students with the structure and classification of farm weeds and grasses. A detailed study will be made of well-selected types. The student will make a collection and identify as many specimens as time will permit.

Elective; junior or senior year; second semester; two credits; two laboratory periods.

Note.—This course should precede Agronomy 13 (Agrostology).

13. **Seminar I.** For advanced or graduate students in Botany and Plant Pathology. The work will consist of reports on advanced studies and abstracts of articles appearing in Experiment Station literature, scientific journals, or the agricultural press.

First semester; one credit.

14. **Seminar II.** A continuation of course 13.

Second semester; one credit.

15. **Research.** Opportunity will be given students who desire to specialize in Botany and Plant Pathology to take up work not given in the regular courses, or to take up the investigation of special problems.

Senior year; first and second semesters; one to five credits.

Note.—Any of the courses outlined above, except A, B, C, 1, and 2, may be taken as a minor upon consultation with the head of the department. Students who elect work in Botany and Plant Pathology as a major study will be required to offer Botany 1 and 2, or their equivalent, as a prerequisite, and to carry an equivalent of five credits throughout the junior and senior years.

PHYSICS.

Professor Weniger.
Mr. Shepard.

A. **Elementary Physics I.** A high school course in Physics adapted to students just beginning Geometry.

The Secondary course in Mechanic Arts; second year; first semester; three credits; two recitations; one laboratory period.

B. **Elementary Physics II.** A continuation of course A.

The Secondary course in Mechanic Arts; second year; second semester; three credits; two recitations; one laboratory period.

1. **General Physics I.** A course in general Physics, descriptive rather than mathematical in character, adapted especially to students of Agriculture. A good working knowledge of geometry is the only prerequisite.

The course in Agriculture; sophomore year; three and one-half credits; two lectures; one recitation; one laboratory period. Transition course; junior year; first semester.

2. **General Physics II.** A continuation of course 1, during the second semester.

3. **General Physics III.** This course is similar in many respects to course 1, but is more technical in its nature, being designed particularly for Engineering students. A working knowledge of trigonometry is required for entrance.

The course in Forestry; all courses in Engineering; sophomore year; first semester; five credits; two lectures; two recitations; one laboratory period.

4. **General Physics IV.** A continuation of course 3.

The course in Forestry; all courses in Engineering; sophomore year; first semester; five credits; two lectures; one recitation; one laboratory period.

5. **General Physics V.** The lectures and recitations in this course are identical with those of course 1, but more laboratory work is required.

The course in Commerce; sophomore year; the course in Pharmacy; junior year; first semester; four credits; two lectures; one recitation; one laboratory period.

6. **General Physics VI.** A continuation of course 5.

The course in Commerce; sophomore year; the course in Pharmacy; junior year; second semester; four credits; two lectures; one recitation; one laboratory period.

7. **General Physics VII.** A brief descriptive course with such applications as are of greatest interest to students in Domestic Science and Art.

The course in Domestic Science and Art; junior year; first semester; three credits; two recitations; one laboratory period.

8. **General Physics VIII.** A continuation of course 7.

The course in Domestic Science and Art; junior year; second semester; three credits; two recitations; one laboratory period.

9. **Electrical and Magnetic Measurements.** A laboratory course in the exact determination of electrical and magnetic quantities, calibration of instruments, etc. Two credits; two laboratory periods.

The course in Electrical Engineering; junior year; first semester; two credits; two laboratory periods.

10. **Heat and Light.** An advanced course, taking up the phenomena of heat and light in detail, including recent discoveries.

Elective; first semester; credit to depend upon work done.

11. **Electricity and Magnetism.** An advanced course, taking up the theory of electrical measuring instruments, etc., with suitable practice in the laboratory.

Elective; second semester; credit to depend upon work done.

MATHEMATICS.

Professor Johnson.
Assistant Professor Tartar.
Mr. Beard.
Mr. Beaty.
Mr. ————

A. **Algebra I.** The work of the course includes a drill in the fundamental operations, use of parentheses, special rules of multiplication and division, factoring, highest common factor, lowest common multiple, and fractions.

The Secondary courses; first year; first semester; five credits; five recitations.

B. **Algebra II.** The topics studied are solution of fractional and literal equations, problems involving linear equations, simultaneous linear equations involving two or more unknown numbers, problems involving simultaneous linear equations, graphical representation, inequalities, involution, evolution, theory of exponents, radical expression, and imaginary numbers.

The Secondary courses; first year; second semester; five credits; five recitations.

C. **Algebra III.** After a short review of the topics which precede quadratic equations, the following subjects are carefully treated: Quadratic equations, problems involving quadratic equations with one unknown number, equations in the quadratic form, theory of quadratic equations, factoring of quadratic expressions, solution of quadratic equations by factoring, graphical representation of quadratic expressions with one unknown number, simultaneous quadratic equations, problems involving simultaneous quadratic equations with two unknown numbers, and graphical representation of simultaneous quadratic equations.

The Secondary courses; second year; first semester; two and one-half credits; alternates with course D.

D. **Geometry I.** Courses D and E include all that is found in Shutts' Plane and Solid Geometry. The constant aim is to develop in the student the power of logical reasoning, and of clearness and accuracy of expression. To this end many original exercises are studied, and at all times demonstrations and proofs are freely discussed in the class room.

The Secondary courses; second year; first semester; two and one-half credits; alternates with course C.

E. **Geometry II.** This is a continuation of course D.

The Secondary courses; second year; second semester; five credits; five recitations.

1. **Plane Trigonometry I.** This course includes functions of acute angles, right triangles, functions of any angle, relations between functions, inverse functions, trigonometric equations, and oblique triangles. Considerable time is devoted to the deduction of trigonometric formulae, study of trigonometric identities, and the solution of practical problems.

All Engineering courses; freshman year; first three-fifths first semester; three credits; five recitations.

2. **Plane Trigonometry II.** This course is arranged especially for students in Agriculture and Commerce.

Freshman year; Agriculture; first semester; three credits; three recitations; Commerce; second semester; three credits; three recitations.

3. **Spherical Trigonometry.** The course in Civil Engineering; freshman year; last half of first semester; one credit; two recitations.

4. **College Algebra I.** After a brief review of radical expressions, theory of indices, and quadratic equations, graphical representation and mathematical induction are studied.

All Engineering courses; freshman year; last two fifths of first semester; two credits; five recitations.

5. **College Algebra II.** This course is a continuation of course 2, and consists of a treatment of the binomial theorem, progressions, permutations and combinations, complex numbers, partial fractions, logarithms, continued fractions, and theory of equations. A short time at the end of the semester may be devoted to the study of analytic geometry.

All Engineering courses; freshman year; second semester; five credits; five recitations.

6. **Plane Analytic Geometry.** The topics studied are the point, the straight line, polar coordinates, transformation of coordinates, the circle, conic sections, tangents, discussion of general equations of the second degree, problems in loci, and higher plane curves.

All Engineering courses; sophomore year; first three-fifths of first semester; three credits; five recitations.

7. **Calculus I.** The fundamental principles of the differential calculus are developed and applied with special reference to the needs of Engineering students.

All Engineering courses; sophomore year; last two-fifths of first semester; two credits; five recitations.

8. **Calculus II.** Among the subjects presented are: evaluation of indeterminate forms, maxima and minima, change of independent variable, direct integration, definite integrals and applications; integration by parts, integration of trigonometric forms, etc.; applications to finding the lengths and areas of curves, surfaces, and volumes of solids of revolution, etc.; double and triple integration and application. In this course, as in course 7, great stress is laid upon practical applications, and a large number of practical problems are solved.

All Engineering courses; sophomore year; second semester; five credits; five recitations.

9. **Commercial Arithmetic.** A review of all the essential operations. Special stress is laid on short methods; daily drills in rapid calculation; construction of labor-saving tables; computation of estimates, partnership settlements, average, etc.

The course in Commerce; freshman year; first semester; three credits; five recitations.

ENGLISH LANGUAGE AND LITERATURE.

Professor Berchtold.
Assistant Professor Callahan.
Mr. Baldwin.
Miss Williams.
Mrs. McElfresh.
Mr. ————

The objective points toward which all efforts in the study of English tend are: The study of English as a means of communication between man and man; the study of English as literature; and the study of English as language.

A cursory glance at this division might suggest the first part as the all important point, i. e., the study of English in its full scope as a means of expression with the pen and the lips. Experience has taught, however, that students of English who wish to become well grounded in the knowledge and use of their mother tongue can not safely neglect any one of these points. For he who studies the art of composition will be greatly helped in his work, if he knows the exact meaning of the words and is familiar with the classics of his native tongue.

Knowledge of the principles of the art of composition as applied by the best writers will assist the student to avoid his own crudities, and will enable him to communicate what he has to say in a better form than he would otherwise employ. By the shortcomings of others he should learn what to guard against, and by their achievements what to seek in his own compositions, be these simple daily or weekly letters to friends or parents, or be they themes, essays, orations, dissertations or contributions to current thought.

What his text-book helps him to do consciously, familiarity with superior writers should help him to do unconsciously; for we may get good from a master of English by unconscious absorption, just as we acquire good manners by associating with gentlemen and ladies. No mind can fail to be stimulated by contact with greater minds, whether living or dead. Their pages feed the powers of thought and strengthen the power of expression, thus enabling the student to think, to talk, and to write to more purpose.

The college graduate of today, when taking his place in the arena of the world, is expected to have, and usually has, thoughts and opinions of his own. To render these ideas of use to his fellow men, and thus to himself, he must be able to give them adequate expression. This the study of Grammar, Rhetoric, Forensics, Oratory, and Literature will help him to do, as all of these branches call for close and accurate observation, correct inference, and sharp discrimination.

A. **Advanced Grammar.** This course is designed to make the expression of ideas a pleasure to the student. The work consists of spelling, writing, and analysis and synthesis of simple grammatical constructions. Written exercises prepared under rules of form are required constantly, to obtain flexibility and confidence in expression. There is daily drill in sentence analysis and construction to give the student a clear idea of the principal parts of sentences. Punctuation and capitalization form a part of the daily drill work. Every expression, while the student is discussing the recitation work, must be complete. As far as possible, the weak points in the individual's language will be corrected. Practice in the correction of written work is given to enable the student to see his own mistakes more readily.

The Secondary courses; first year; first semester; four credits; four recitations.

B. **Composition.** The aim of this course is to ground students thoroughly in the elements and fundamentals of composition. Capitalization and punctuation reviewed; the importance of letter-writing emphasized; principles governing sentence structure, paragraph structure, and theme structure studied, with certain classical models always in the foreground; in short, to develop power of expression and individuality as spontaneously and naturally as possible. A reasonable amount of written work will be required, more especially to illustrate the forms of composition. To be taken in connection with English D, and supplemented by it.

The Secondary courses; first year; second semester; two credits; two recitations.

C. **Classics I.** The aim of this elementary course is to cultivate in the student a taste for reading; to assist him in the interpretation of the simpler classics of our literature; and to encourage him to express his own thoughts clearly and without embarrassment. Masterpieces of prose and poetry are studied and some collateral reading is required.

The Secondary courses; first year; first semester; one credit; one recitation.

Paradise Lost, Books I and II, Milton.
Snowbound, Whittier.

D. **Classics II.** A continuation of Classics I.

The Secondary courses; first year; second semester; three credits; three recitations.

The Iliad, Lang's Translation.
The Pilgrim's Progress, Part I, Bunyan.
The Merchant of Venice, Shakespeare.
The Vision of Sir Launfal, Lowell.

E. **Rhetoric and Composition I.** Open to students who have had courses A, B, C, D, or their equivalent.

A review of the principles of grammar; exercises in syntactical construction; principles governing the structure of the whole composition; analysis and outlines of specimens of easy classic prose and poetry, with a view to illustrating theme structure; writing of short compositions in class on ''read up'' matter; and a preparation of a theme each week, in the narrative or descriptive forms, with attention to sentence structure, spelling, punctuation, and paragraph arrangement.

The Secondary courses; second year; first semester; three credits; three recitations.

F. **Rhetoric and Composition II.** A continuation of course E. Intensive study of the Paragraph, the Sentence, and the Word; study of synonyms; paragraph writing, with a view to applying the principles governing the development of the topic statement; elementary themes, weekly, in the expository and argumentative forms.

The Secondary courses; second year; second semester; three credits; three recitations.

G. **Classics III.** Principles of literary criticism; interpretative study of literary classics; analysis and rendering. George Eliot's Silas Marner, Irving's Sketch Book, Scott's The Lady of the Lake, Coleridge's Ancient Mariner constitute the list of classics from which selections for study will be made.

All Secondary courses; first semester; two credits; two recitations.

H. **Classics IV.** Continuation of the methods of work employed in the first semester. A selection of three classics will be made for study from a list consisting of Shakespeare's As You Like It, Addison's De Coverley Papers, Dickens' A Tale of Two Cities, and Macaulay's Lays of Ancient Rome.

All Secondary courses; second semester; two credits; two recitations.

1. **Rhetoric.** Study of the elements and principles involved in effective discourse. The study of words; the sentence; the paragraph; descriptive, narrative, and expository forms of composition with written exercises in each. Careful attention to making plans and outlines. Descriptions and narrations written on demand in class, under limit. Personal conferences with the instructor on all written work are an important part of the course.

All degree courses; freshman year; first semester; three credits; three recitations.

Prerequisites: English A, B, C, D, E, F, G, H.

2. **Advanced Rhetoric.** Study and practice in expository writing in class; drill in careful, orderly arrangement of material; outlines of plans, introductions, conclusions; study of effective paragraphings; importance of color and action; illustration and exemplification; bi-weekly and monthly themes with personal conferences.

All degree courses; freshman year; second semester; three credits; three recitations.

Prerequisities: English 1, 3.

3. **Advanced Classics and Reading I.** Principles of literary criticism; advanced interpretative study of literary classics; analysis and rendering.

All degree courses; freshman year; first semester; two credits; two recitations.

Hamlet, The Tempest, Carlyle's Essay on Burns, Macaulay's Essay on Addison.

4. **Advanced Classics and Reading II.** A continuation of course 3.

All degree courses; freshman year; second semester; two credits; two recitations.

Macbeth, Lear, Macaulay's Essay on Johnson, Emerson's Essays (selected).

5. **Exposition and Argumentation.** A continuation of course 2, with principal emphasis on Argument. Reading and analysis of forensic masterpieces. Drill in principles of definition, restriction and exclusion; study of value of evidence and proof as support of a proposition; recognition of the difference between assertion and argument; the relation of main and subordinate support to a proposition; difference between inductive and deductive proof; exposition continued.

The course in Domestic Science and Art; sophomore year; first semester; three credits; three recitations.

Burke's On Conciliation with America, Webster, Lincoln.

6. **The Essay.** This is perhaps the most instructive, helpful, and profitable of the forms of discourse. A careful study of the works of the masters of this difficult form: Emerson, Lowell, Stedman, DeQuincey, Macaulay, Matthew Arnold, and Ruskin; study of the paragraph; occasional written exercises, with the essays read as guides, to acquire correctness and facility of expression.

The course in Domestic Science and Art; sophomore year; second semester; three credits; three recitations.

7. **English Literature I.** A general outline course based upon Long's History of English Literature. This includes a survey of the principal forms of literature as exemplified by the masters in each field. The aim is to cultivate an appreciation of what is excellent in quality and form. Masterpieces representing the best thought and form are studied in class or assigned to students for

careful reading and reports. Chief attention given to Chaucer, Shakespeare, Milton, Pope, Johnson, and Goldsmith.

The course in Domestic Science and Art; junior year; first semester; three credits; three recitations.

8. **English Literature II.** A continuation of course 7. A study of the writers of the nineteenth century: Scott, Macaulay, Dickens, Thackeray, George Eliot, Matthew Arnold, Carlyle, Ruskin and others. The required readings are designed to illustrate the different forms and periods of English literature.

The course in Domestic Science and Art; junior year; second semester; three credits; three recitations.

9. **American Literature I.** A study of the leading periods and principal writers of our country, with particular emphasis on what is sometimes called the First National Period, including such authors as Irving, Cooper, Bryant, Poe, Hawthorne, Longfellow, and Holmes; also prominent writers of the present day; lectures; class room study and reading; compositions.

The courses in Domestic Science and Art, Electrical Engineering, and Pharmacy; elective in the other courses; senior year; first semester; two credits; two recitations.

10. **American Literature II.** A continuation of course 9. The metropolitan writers; present schools and tendencies; literature in the West; lectures; class room study and reading; compositions.

The courses in Domestic Science and Art, Electrical Engineering, and Pharmacy; elective in the others; second semester; two credits; two recitations.

11. **Business English.** Besides giving a thorough training in commercial correspondence, the course aims to ground the student in the vocabulary, forms, and usages peculiar to business and administrative pursuits. Incidental writing, summaries, advertising, preparation of copy and proofreading receive much attention.

The standards of commercial English are each year advancing; and familiarity with proper usage of recognized form is of paramount importance to those who are looking forward to a business career.

The Commercial course; freshman and secondary years; first semester; three credits; three recitations.

PUBLIC SPEAKING.

Professor Hetzel.
Mr. Mathews.
Miss Williams.

The course in Public Speaking is intended to serve three purposes: (1) to train students in the use of English as a means fo expression and communication for the ordinary demands of social commercial and professional life; (2) to continue that training t suit the special needs of those who intend to take up lines o activity which necessitate speaking in public; (3) to develop skil in elocution, interpretative reading and dramatic presentation. Th courses have been prepared to meet the particular needs of th students in the various courses.

The Oregon Agricultural College participates in several intercollegiate oratorical contests and debates. The courses in Publi Speaking are designed to give preparation for these contests Candidates for positions on these teams or those desiring trainin for the Literary Society contests are advised to consider course 5, 6, and 7. Students who are interested in dramatic presentation or who wish to become public readers or teachers should conside courses 8 and 9.

All students in Agriculture, Engineering, Commerce, and Pharmacy are required to take courses 1, 2, 3, and 4. These courses ar made very practical and are designed to teach students how t analyze, organize and present argument in support of proposition of the same nature as those which they expect to meet in thei chosen lines of work.

1. **Argumentative Themes.** This course is devoted principall to training in analysis, evidence, and brief-drawing. The wor consists of lectures, a study of text-books, and practice in th composition of various forms of argumentative themes.

All Engineering courses and in Pharmacy; sophomore year first semester one credit; one recitation.

In the courses in Agriculture, Commerce, and Forestry; juni year; first semester; one credit; one recitation.

2. **Presentation.** This course deals with the principles of conviction and persuasion, and with the problems of presentation. Students are taught how to recognize and solve problems which arise because of the different interests and characters of individuals and communities.

All Engineering courses and in Pharmacy; sophomore year; second semester; one credit; one recitation.

In the courses in Agriculture, Commerce, and Forestry; junior year; second semester; one credit; one recitation.

3. **Composition of Address.** This course deals with the composition of the most important kinds of addresses, including the argument, the eulogy, the commemorative address, and various forms of non-forensics. The work consists of lectures, a study of text-books, analysis of masterpieces, practice in the composition of the various forms and frequent class room exercises.

All Engineering courses; junior year; first semester; two credits; two recitations.

In the courses in Agriculture, Commerce, Forestry, and Pharmacy; senior year; first semester; two credits; two recitations.

4. **Extempore Speaking.** Daily practice in the presentation of the various forms of addresses. Speeches are prepared on topics of special and particular interest to the students and delivered with the view of making them most effective as means in the advancement of a particular cause. Extensive criticism is offered as to methods of selection, organization and presentation.

All Engineering courses; junior year; second semester; two credits; two recitations.

In the courses in Agriculture, Commerce, and Pharmacy; senior year; second semester; two credits; two recitations.

5. **Practical Public Speaking I.** Practice in the presentation of the various forms of public address, voice training, study of gesture, bearing, and the elements of ease, grace, and force in presentation. Practice in the rapid preparation of speeches on topics of current interest, and in the impromtu delivery of same. Designed for those who wish some general training in public speaking. Drill in parliamentary procedure.

Elective; first semester; three credits; three recitations.

6. **Practical Public Speaking II.** Continuation of course 5.

Elective; second semester; three credits; three recitations.

7. **Debating.** Practical work in brief-drawing, the collection and handling of evidence, and debating. Each student will prepare several debates under the direction of the instructor; construct briefs and participate in class room debates. Personal consultation with the instructor on thought, composition and delivery This course is a critical and practical study of debating. The class is limited in number. The course can be taken only with the consent of the instructor.

Elective; first semester; two credits; two recitations.

8. **Oratory.** This course is intended as special preparation for those who wish to enter oratorical work. The work consists of lectures on the theory of oratory, the preparation of original orations, class room exercises and personal conferences and criticism. The course can be taken only with the consent of the instructor.

Elective; first semester; one credit; one recitation.

9. **Elocution I.** Literary interpretation, including analysis, memorizing, and rendering of selected masterpieces of prose and poetry The aim of this course is to enable the student not only to understand and appreciate the thought and spirit of literature, but to render it naturally and effectively; to correct erroneous habits of speech and to give freedom, purity, and strength of tone; to cultivate the power of expression through imagination; to eliminate artificiality, affectation and self-consciousness.

Elective; first semester; two credits; two recitations.

10. **Elocution II.** Continuation of course 9.

Elective; second semester; two credits; two recitations.

11. **Elocution III.** Advanced literary interpretation. Training in the delivery of masterpieces of prose and poetry; repertoire; Bible reading; interpretative study of Spakespeare and the Modern Drama; voice culture; bodily expression; impersonation.

Elective; first semester; two credits; two recitations.
Prerequisite: Course 8.

12. **Elocution IV.** Continuation of course 11.

Elective; second semester; two credits; two recitations.

MODERN LANGUAGES.

Professor Taillandier.
Miss Kuney.
Mr. ————

The instruction in Modern Languages covers a three-year course in French, German, and Spanish.

Two years of either French, German, or Spanish are required in all degree courses except Mining Engineering, in which course it is an elective.

The work in either German or French is intended to prepare the student for the reading of scientific texts, to enable him to translate understandingly and with ease any scientific work which he may wish to read in the execution of his profession; in Spanish, the aim is to teach students the use of the living language, not merely to read, but to understand and speak it, with a view to possible work in Mexico, or the Philippine Islands.

Considerable attention is given to conversation.

The following courses are offered:

1. **French I.** Fraser and Squair's Complete French Grammar, Super's French Reader, Compayre's Yvan Gall.

Sophomore year; first semester; three credits; three recitations.

2. **French II.** A continuation of course 1.

Sophomore year; second semester; three credits; three recitations.

Prerequisite: Modern Language 1.

3. **French III.** Continuation of the grammar; Bronson's Everyday French; Buell's French Daily Life; easy texts, such as Bazin, Contes Choisis; Scribe, Le Verre D'Eau, etc.

Junior year; first semester; three credits; three recitations.

Prerequisites: Modern Language 1 and 2.

4. **French IV.** A continuation of course 3.

Junior year; second semester; three credits; three recitations.

Prerequisites: Modern Language 1, 2 and 3.

5. **French V.** Readings of modern French writers, such as Daudet, Sand, Merimee, etc. French Composition: J. E. Mansion.

Senior year; first semester; three credits; three recitations.

Prerequisites: Modern Language 1, 2, 3, 4.

6. **French VI.** A continuation of course 5.

Senior year; second semester; three credits; three recitations.

Prerequisites: Modern Language 1, 2, 3, 4, and 5.

7. **German I.** Bierwirth's Beginning German. Ed. 1906. Bacon Im Vaterland.

Sophomore year; first semester; three credits; three recitatio

8. **German II.** A continuation of course 7.

Sophomore year; second semester; three credits; three recitatio

Prerequisite: Modern Language 7.

9. **German III.** Jagemann's Syntax; Bronson's Colloquial Ge man; Mosher's Willkommen in Deutschland.

Junior year; first semester; three credits; three recitations.

Prerequisites: Modern Language 7 and 8.

10. **German IV.** A continuation of course 9.

Junior year; second semester; three credits; three recitations.

Prerequisites: Modern Language 7, 8, and 9.

11. **German V.** Reading of selected prose works such as Hauff Lichtenstein, Heine's Harzreise, etc. Paul R. Pope's Germa Composition.

Senior year; first semester; three credits; three recitations.

Prerequisites: Modern Language 7, 8, 9, and 10.

12. **German VI.** A continuation of course 11.

Senior year; second semester; three credits; three recitations.

Prerequisites: Modern Language 7, 8, 9, 10, and 11.

13. **Spanish I.** Loiseaux's Elementary Spanish Grammar; Wo man's First and Second Spanish Book; Ramsey's Elementa Spanish Reader.

Sophomore year; first semester; three credits; three recitatio

14. **Spanish II.** A continuation of course 13.

Sophomore year; second semester; three credits; three recitatio

Prerequisite: Modern Language 13.

15. **Spanish III.** Ramsey's Spanish Grammar; Bonilla, Dai Spanish Life; Loiseaux's Spanish Reader; Bransby's Spani Reader.

Junior year; first semester; three credits; three recitations.

Prerequisites: Modern Language 13, 14.

16. **Spanish IV.** A continuation of course 15.

Junior year; second semester; three credits; three recitations.

Prerequisites: Modern Language 13, 14, and 15.

17. **Spanish V.** Giese and Cool's Spanish Anecdotes; Loiseaux's Composition; Reading of selected prose works by Galdos, Valera, Alarcon, etc.

Senior year; first semester; three credits; three recitations.

Prerequisites: Modern Language 13, 14, 15, and 16.

18. **Spanish VI.** A continuation of course 17.

Senior year; second semester; three credits; three recitations.

Prerequisites: Modern Language 13, 14, 15, 16, and 17.

LATIN.

Miss Bowden.

Instruction in Latin includes one year of required work in the course in Pharmacy; two years elective in the department of Domestic Science and Art, and a third year as a general elective. The course consists of a thorough drill on the inflections, a study of etymology and syntax, and much practice in composition. The aim is to give the student some power in understanding technical terms used in science, and to increase his knowledge and vocabulary in English. The value of the study as an aid in English Grammar is also brought out.

In the translation, an effort is made to interpret the spirit of the ancient Romans and to get an insight into their character and civilization, as well as to secure some appreciation of their literature.

1. **Latin I.** A knowledge of syntax and inflections such as is given in any good preparatory Latin book; also the ability to read simple fables and stories.

The course in Pharmacy; freshman year; elective, in the course in Domestic Science and Art; sophomore year; first semester; three credits; three recitations.

2. **Latin II.** A continuation of course 1.

The course in Pharmacy; freshman year; elective, in the course in Domestic Science and Art; sophomore year; second semester; three credits; three recitations.

3. **Latin III.** Caesar's Gallic War; Latin composition; systematic study of Latin Grammar; Book I and fifteen chapters in Book II.

Elective; junior year; first semester; three credits; three recitations.

4. **Latin IV.** A continuation of course 3; finish Book II and read also Books III and IV.

Elective; junior year; second semester; three credits; three recitations.

5. **Latin V.** Three orations of Cicero; Latin composition; Latin grammar; sight reading.

Elective; first semester; three credits; three recitations.

6. **Latin VI.** Three orations of Cicero; Latin composition; Latin grammar; sight reading.

Elective; second semester; three credits; three recitations.

HISTORY.

Professor Horner.

A. **Ancient History.** A survey of the ancient eastern nations, with a careful study of Greece and Rome.

The Secondary courses; first year; first semester; three credits; three recitations.

B. **Mediaeval and Modern History.** A study of the social and political institutions of Europe, with discussions touching the material progress of these ages; famous works of art; foundations, inventions, discoveries, enterprises, improvements, and investigations.

The Secondary courses; first year; second semester; three credits; three recitations.

1. **English History.** An outline of political and constitutional history to serve as a framework for the study of the economic, social, and intellectual development of the nation.

The course in Domestic Science and Art; freshman year; first semester; three credits; three recitations.

2. **United States History.** With special attention to the colonial, political, and industrial aspects.

The courses in Commerce and Domestic Science and Art; freshman year; second semester; three credits; three recitations.

3. **Modern Europe.** The Development of Modern Europe Since the Congress of Vienna.

Elective; three credits; three recitations.

ART.

Assistant Professor McLouth.
Mr. ————

The chief aim of the course in Drawing is to teach the student to see truly, to obtain quicker perceptions, and to develop a keenness of observation, accurate judgment, and concentration of the mind. Few among us see truly what we see, and then only what we have been educated to see. Besides the general quickening of perception and the training of the eye to accurate sight, it affords the means of noting the forms of objects such as no written description can secure. It is a mode of expression second only to language itself.

In considering the study of drawing, its importance is too often lost sight of, and yet it may be safely said that drawing is a corner stone in the foundation of not only industrial education, but of a scientific education as well. In engineering courses, for instance, a knowledge of drawing is one of the first requirements. Drawing is an invaluable element in general education as a handmaid to the other branches of study; and the foremost educators advocate the study of drawing as the first step in any system of industrial education.

A. **Drawing I.** The purpose of this course is to teach the student to see correctly and to judge accurately, to give him enough general knowledge of drawing to make it an aid in the pursuance of other branches of study where graphic representation is an important feature of the work; and to give him such a training as will best and most fully meet the needs of the subsequent work.

The course consists of the principles of drawing, elementary perspective and its application, drawing in charcoal and pencil (line and light and shade) from geometric forms, block casts, and simple still life. Much attention is given to proportion and accurate outline, because in laboratory drawing, such as in Botany and Zoology, true outline is of greatest importance.

The Secondary courses and an entrance requirement to all degree courses; first year; first semester; two credits; four class periods.

B. **Machine Sketching.** This course is continued throughout the second semester, but is divided and designed to meet the requirements of the several Engineering courses. A considerable proportion of the time is given to machine sketching to acquaint the student with the method of securing and retaining data for complete working drawings by the aid of sketches; making and reading working drawings; detailing complicated parts, orthographic projection, and lettering. The conventions of practice and the method of making clear, accurately dimensioned sketches for working drawings is given first consideration. In machine sketching, the objects from which the sketches are made are selected from approved designs of commercial machinery and electrical apparatus to give familiarity with correct forms. This work is carried on in the machine shops.

The Secondary courses in Mechanic Arts; is also an entrance requirement to all of the degree courses in Engineering; first year; second semester; two credits; four class periods.

Prerequisite: Course A.

C. **Drawing II.** This course is designed for students in Agriculture, Domestic Science and Art, Forestry, Commerce, and Pharmacy, to further carry out the aims of course A, but instead of drawing in charcoal from geometric forms and block casts, more complicated drawings are made, the work being in pencil and pen and ink from plants and insect specimens. Students in the course in Domestic Science and Art will give special attention to flowers and foliage with a view to design.

The Secondary courses in Agriculture, Domestic Science and Art, Forestry, Commerce, and Pharmacy; first year; second semester; two credits; four class periods.

Prerequisite: Course A.

D. **Drawing III.** This course is given to better equip the student in the course in Domestic Science and Art with a strong foundation for the applied art work following, that they may be better able to carry out the subsequent courses intelligently. The work is a continuation of Drawing A.

The Secondary course in Domestic Science and Art, and an entrance requirement to the Degree course in Domestic Science and Art; second year; first semester; two credits; four class periods.

Prerequisites: Courses A and C.

E. **Drawing III.** A continuation of course D.

Second semester; two credits; four class periods.

The Secondary course in Domestic Science and Art, and an entrance requirement to the Degree course in Domestic Science and Art; second year; second semester; two credits; four class periods.

Prerequisites: Courses A, C, and D.

1. **Freehand Lettering and Title Design.** This course is especially designed for students in Civil and Mining Engineering, and consists of freehand lettering, the construction of Roman and Gothic letters and spacing, design of lines and titles, the single line titles, the choice of style and size of letters, how to lay out and execute the design and tinting.

The courses in Civil Engineering and Commerce; freshman year; first semester; two credits; two class periods.

Prerequisites: Courses A, C, and D.

2. **Stencil Design I.** Stenciling is coming to be the principal factor in home decoration, not only of walls, as is generally thought and expressed by the word fresco, but also of wall coverings, as well as stenciling on textiles that can be taken down the same as costly tapestry. Draperies of all kinds, curtains, table

coverings, runners, screens, and sofa pillows are among the things that can be beautifully stenciled. And all this is not beyond our reach. It can be done by all to a greater or less degree of success. Even the most modest degree of success will without doubt add materially to the beauty and attractiveness of a home. It is then with this purpose in view that course 2 is given. The work is a continuation of course D, giving special attention to the study of flowers and foliage with the idea of design. Each student will execute a number of patterns, cutting stencils suitable for application to the materials (linen, crash, and art burlap) most available for house decoration.

The course in Domestic Science and Art; sophomore year; first semester; two credits; four class periods.

Prerequisites: Courses A, C, D, and E.

3. **Stencil Design II.** A continuation of course 2.

Second semester; two credits; four class periods.

The course in Domestic Science and Art; sophomore year; second semester; two credits; four class periods.

4. **Cast and Still-Life Drawing.** This course offers advanced work in drawing—line and light and shade from casts and still-life, and is designed especially for students who enter the upper classes, though without the required credit and yet who are capable of pursuing work above the elementary.

First and second semesters; two credits; four class periods.

LIBRARY.

Mrs. Kidder.
Miss Knepper.
Miss Herse.

1. **Library Practice.** This course teaches by means of lectures and practical problems the use of catalogues, indexes, and reference books, such as dictionaries, encyclopedias, atlases, handbooks of general information, handbooks of history, statistics, quotations, etc.

All Degree courses; freshman year; first semester; one credit; one recitation.

PHYSICAL EDUCATION.

Professor Angell.
Mr. Arbuthnot.
Miss Williams.
Miss Houston.

It is the purpose of the department of Physical Education to furnish students ample opportunity for physical development. The ill effects of the sedentary life of students may be counterbalanced by activity in the gymnasium and on the athletic field. All secondary, freshman, and sophomore students are required to take two periods of exercise each week throughout the college year. Before being assigned to a class, each student will be given a thorough physical examination. The more important measures will be taken, and the condition of the vital organs noted. Advice will be given as to the best exercise to be used in securing a symmetrical development. Students below normal in health and muscular strength will receive special attention and consideration.

Fall Work. This course consists chiefly of outdoor exercises, cross-country running, baseball, tennis, football, and other games.

Winter Work. Calisthenics and light apparatus drills; class work on the horse, parallel and horizontal bars, rings, and similar apparatus; recreative games; basket-ball, wrestling, and boxing.

Spring Work. Track and field athletics, baseball, tennis, cross-country running.

Normal Course. Many students expect to take up the profession of teaching after graduation from college. A general knowledge of the theories of physical education and methods of gymnastics and athletic instruction is often of material assistance in securing important teaching positions.

Students showing an especial aptitude and interest in physical education will be admitted to this course. The work will include lectures on the history and development of physical training, the general physiological principles of exercises, methods of teaching and first aid to the injured. Calisthenics, gymnastic drills, appa-

ratus work, games, and athletics will comprise the practical wo
of the course.

Elective; hours and credits subject to arrangement.

COURSES FOR WOMEN.

All sophomores, freshmen, and students of the Secondary cours
unless physically unable, are required to take physical trainin
The classes meet twice a week for sixty-minute periods.

This course is planned for consecutively progressive work, a
consists of systematic exercises for the development of all parts
the body. The purpose of the course is to develop a strong a
symmetrical physique, with a graceful and easy carriage; to corre
physical defects and deficiency in nervous control, and to insu
the individual health and organic vigor.

In addition to the regular class work in the gymnasium, vario
games and pastimes are open to all young women of the Colle
The course is designed to be recreative as well as educational, a
the cultivation of the play instinct is emphasized as an importa
factor in physical training.

Women pursuing this course are required to provide themsel
with a gymnasium suit, consisting of a blouse waist and bloome
with the regulation gymnasium shoes.

Elementary Course. Free developing exercises for poise, pr
ence, and bearing, for the vital organs, for respiration; light a
ratus work, Indian clubs, dumb-bells, wands, gymnastic tacti
military and fancy marching; harmonic movements; gymnas
games.

Advanced Course. Difficult free movements from Swedish a
German systems; apparatus work of various kinds; single sti
marching, running, jumping; artistic gymnastics; Gilbert work a
folk dances.

HYGIENE.

This course is arranged to give general information regard
the laws of health to all freshman students. Its purpose will
to instruct in a popular way in the general principles of hygie
Lectures will be given, by specialists, that lead to a comprehens

nowledge of the human machine and its relation to healthful ocial life. Lectures on bacteriology, and its relation to health and ell being, will be included in the course. Ventilation, physical ercise, recreation, diet, and bathing, will also be discussed. ygiene of occupation will be considered and the importance of od physical habits as a commercial asset will be emphasized in is course.

The course in Hygiene for young women will be given in a parate section.

All Degree courses; freshman year; second semester; one credit; e lecture.

COURSE NUMBERS IN PHYSICAL EDUCATION.

1. First year Secondary; first semester.
2. First year Secondary; second semester.
3. Second year Secondary; first semester.
4. Second year Secondary; second semester.
5. Freshman year; first semester.
6. Freshman year; second semester.
7. Sophomore year; first semester.
8. Sophomore year; second semester.

INDUSTRIAL PEDAGOGY.

Professor Ressler.

The department of Industrial Pedagogy offers courses in the eparation of teachers for the public schools in the subjects of ementary agriculture, domestic science and art, and manual aining. The introduction of these branches in the elementary d high schools of the State is proceeding rapidly. School officers e confronted with the problems of courses of instruction, estiates of equipment, correlation of the new with the old subjects the curriculum, and others, in addition to the main one of ecially trained teachers.

This department, in conjunction with the other College departents concerned, has undertaken to prepare tentative courses of study in each of the industrial branches, adapted to the age of th pupils and to the social demands on the school. It will als undertake to assist teachers in the work of instruction, by genera and special suggestions through College and other publication and by correspondence and visitation where possible. Detaile lists of equipment and apparatus, with cost, suitable for sma and large schools, will be furnished on request.

In addition to the regular courses during the academic yea short courses will be given each summer for the benefit of teache and others unable to take advantage of the regular sessio Special bulletins of these summer courses are issued each year.

The regular courses of the department are open to juniors an seniors and to special students who have had the necessary course in the subject-matter in the branches they desire to teach. Hig school graduates and teachers of some experience may qualify a special teachers in two years. The academic courses in agricultur domestic science and art, and manual training are listed an described under their respective departments. The courses r quired for teachers will correspond in the main to those given i the secondary and freshman years. This arrangement is temporar and subject to change as the needs of the students and the develo ment of the department require.

The following courses will be offered during the year 1910-11:

1. **Psychology I.** A study of general psychology by lecture recitations, and reports; a description of the facts and laws o mental activity with applications to the ordinary affairs of lif demonstrations and experiments showing the relation of ment life to the nervous system; the significance of habit in condu and character.

Elective; junior and senior years; first semester; three credit three recitations.

2. **Psychology II.** The application of the facts and princip of psychology to teaching; a study of the growth of the child mi and the relation of the various periods to educational organizatio adaption of courses of instruction, methods of teaching, disciplin and general school activities to the stages of the pupil's develo ment; lectures, recitations, reports, and simple investigations.

Elective; junior and senior years; second semester; three credits; three recitations.

3. **History of Education.** A general review of the growth and development of education and its relation to the civilization of the times; particular attention given to the rise of industrial education in Europe and America, and its place in the social and political life of the country.

Elective; junior and senior years; first semester; three credits; three recitations.

4. **School Organization and Management.** A discussion and analysis of the American system of education, with an interpretation of the purpose and spirit of each division; problems of administration and teaching in the public schools; the correlation of the industrial branches with the other subjects in the curriculum; practical exercises in making programs, keeping records, filling out reports, and performing other duties required by the Oregon school law.

Elective; junior and senior years; second semester; three credits; three recitations.

5. **General Method.** The principles of teaching, including method of the recitation, preparation of lesson plans, and observations of model teaching; library references to periodicals and current literature relating to public school agriculture, domestic science and art, and manual training.

Elective; junior and senior years; first semester; two credits; two recitations.

6. **Special Method I.** A careful, detailed study of the public school course in agriculture, with numerous lesson plans on typical subjects; observation of model lessons and practice teaching in the public schools.

Elective; senior year; second semester; two credits; two recitations.

7. **Special Method II.** Same as I, applied to public school course in domestic science and art.

Elective; senior year; second semester; two credits; two recitations.

8. **Special Method III.** Same as I, applied to public school course in manual training.

Elective; senior year; second semester; two credits; two recitations.

MILITARY SCIENCE AND TACTICS.

Captain McAlexander.

"I cannot help plead to my countrymen, at every opportunity, to cherish all that is manly and noble in the military profession, because peace is enervating, and no man is wise enough to foretell when soldiers may be in demand again."—General Sherman.

The military body of this College consists of one regiment of infantry having three battalions of four companies each, a hospital corps detachment, and a band of thirty-two instruments. The drill and administration are the same as in the Regular Army.

One of the objects of this instruction is to prepare the cadet so that upon graduation he will be thoroughly competent to hold a commission in the National Guard or volunteer army.

The greater part of the instruction is directed toward having cadets adopt a systematic rule of conduct, inculcating accurate methods in everything they undertake. This not only places cadets in the condition to receive favorably all instruction in the military department, but facilitates study in the other departments, and becomes a valuable asset to a young man going out into the world in any profession.

Military drill improves the habits and manners of the student, develops him physically, and gives him that military knowledge which it is desirable every citizen should possess that he may render intelligent aid to his country or state in the time of need. It cultivates a manly spirit, ready and implicit obedience, respect for authority, and self-restraint—all qualities of inestimable value to a young man.

Instruction in the course is prescribed for all undergraduate male students. Students physically unable to bear arms are excused from active military drill but will be assigned some light duty by the head of the department. The instruction is both practical and theoretical.

The new armory contains a drill room 120x300 feet in extent, ample office room, and suitable rooms for storing guns and other ordnance.

Eight hundred and forty modern U. S. magazine rifles (Krag-Jorgensen) and equipment have been obtained. Other necessary accoutrements and apparatus for the thorough equipment of the military department are furnished by the College.

Appointment and promotion of officers and non-commissioned officers, and their relative rank in each grade, are determined according to the military standing of the cadets, based upon a careful consideration of the following points: knowledge of drill and other duties as determined by examination, practical application of this knowledge on the drill field, and recommendations of superior officers; zeal, soldierly bearing, and aptitude for command; character; military record; general standing in College.

Commissioned officers are selected from the senior class or such as have had three or more years of drill; non-commissioned officers from the junior and sophomore classes; all reductions are to the grade of private. All appointments and promotions are made by the commandant with the approval of the President of the College.

Drill. Secondary, freshman, sophomore, junior and senior years, four hours per week. Senior privates (excepting bandmen) who have had two or more years of drill may be excused from such drill during the second semester. The practical course in infantry includes the school of the soldier, company and battalion, in close and extended order; evolutions of the regiment; ceremonies; guard and outpost duty; target practice and battle tactics.

Paragraph 20, General Orders No. 155, War Department, July 24, 1907, directs that, ''Upon occasions of Military Ceremony, in the execution of drills, guard duty, and when students are receiving any other practical military instruction, they shall appear in the uniform prescribed by the institution. They shall be held strictly accountable for the arms and accoutrements issued to them.''

The wearing of mixed civilian and uniform clothing is prohibited at all times. The uniform complete costs about $18.00, and is of the regulation olive drab color adopted by the United States Army, and makes a very neat and serviceable suit.

Students must come prepared to deposit the price of the uniform, for which they will be measured as soon as they learn the position of a soldier.

Proficiency in the military department is a requisite to graduation.

1. **Theoretical Instruction I.** This instruction consists of recitations in Infantry, Drill Regulations, Field Service Regulations, Manual of Guard Duty, and Army Regulations; instruction in military correspondence and reports and returns; lectures on military subjects that pertain to the organization and administration of the United States military forces in peace and in war. Junior year; first semester; one credit; one recitation or lecture.

2. **Theoretical Instruction II.** Junior year; second semester; one credit; one recitation or lecture.

3. **Theoretical Instruction III.** Senior year; first semester; one credit; one recitation or lecture.

4. **Theoretical Instruction IV.** Senior year; second semester; one credit; one recitation or lecture.

The Brodic Banner is a richly decorated silken banner that is carried by the best drilled company as a mark of merit. Each year it goes to the company making the highest total number of credits in competitive drill. Company G carries the honor for 1909-10.

ROSTER.

Field and Staff.

Colonel	Fred E. Ewart
Lieutenant Colonel	M. A. McCall
Lieut. Col. Insp.	M. R. Cox
Lieut. Col. A. G.	R. L. Davidson
Captain and Adjutant	F. J. Williams
Captain and Q. M.	I. Province
Captain M't'd Det.	S. Maurer

Non-Commissioned Staff.

Sergeant Major	H. J. Pfandhoefer
Q. M. Sergeant	
Commissary Sergeant	
Color Sergeant	H. Gill
Color Sergeant	A. W. Dodge
Ordnance Sergeant	M. A. Young

Band.

Director	H. L. Beard
Chief Musician	C. A. Vincent
Chief Trumpeter	C. N. Anderson
Principal Musician	F. McGinnis
Drum Major	W. R. Carlson
Sergeant	H. D. Bowman
Sergeant	A. G. E. Abendroth
Sergeant	H. L. Prather
Sergeant	C. Mays
Corporal	W. A. Sellwood
Corporal	C. L. Reed
Corporal	R. Fleser
Corporal	A. C. Archbold
Corporal	E. Woodcock
Corporal	T. R. Hudson
Corporal	H. M. Propst
Corporal	J. T. Burch

First Battalion.

Major..............W. T. Stratton Sergeant Major....L. A. Duckworth
First Lieut. and Adjt...H. H. Barbur
Second Lieut. and Q. M...R. W. Rees

	Company A.	Company B.
Captain	C. A. Burris	V. P. Gianella
First Lieutenant	C. P. Richards	J. O. Vines
Second Lieutenant	J. W. Powell	C. L. Nelson
First Sergeant	A. O'Connor	C. E. Metcalf
Sergeant	W. D. Haskell	W. C. Dyer
Sergeant	L. C. Keene	G. L. Harper
Sergeant	A. L. Raines	W. E. Taylor
Sergeant	D. S. Young	M. T. Calif
Sergeant		C. C. Thompson
Corporal	J. O. Enberg	S. H. Arbuthnot
Corporal	E. F. Eschricht	O. B. McFadden
Corporal	H. Sigglin	E. Y. Haskell
Corporal	R. L. Stoneberg	G. Rieben

	Company C.	Company D.
Captain	J. M. Reynolds	J. J. Thompson
First Lieutenant	G. Zimmerman	L. H. Booth
Second Lieutenant	J. L. McAllister	
First Sergeant	C. L. Jamison	R. S. Loosley
Sergeant	R. F. Ginther	W. J. Thornton
Sergeant	F. E. Graham	W. DuMoulin
Sergeant	J. L. Batchelder	H. J. Gilkey
Sergeant	M. H. Horton	
Sergeant	G. Startzoff	
Corporal	C. D. Houser	C. E. Sitton
Corporal	W. E. Morris	H. M. Teel
Corporal	W. A. Armstrong	C. R. Thomson
Corporal	R. D. Bridges	E. F. Weatherford

Second Battalion.

Major...............U. E. Brown Sergeant Major........A. P. Gibson
First Lieut. and Adjt...E. M. Billings
Second Lieut. & Q.M...C. C. Dickson

	Company E.	Company F.
Captain	A. H. Schmidt	E. E. Carrol
First Lieutenant	J. D. Lines	
Second Lieutenant		L. C. Rulifson
First Sergeant	M. E. Smead	C. A. Dunn
Sergeant	W. Keck	E. B. Lemon
Sergeant	A. P. Gibson	J. W. Graham
Sergeant	O. B. Hardy	I. R. Chapman
Sergeant	W. W. Harris	O. J. Olson
Sergeant	J. Q. Adams	
Corporal	R. W. Castle	L. Beaty
Corporal	G. C. Jones	L. E. Eagy
Corporal	R. O. McGee	F. B. Gross
Corporal	M. A. Nickerson	R. Q. Wills

	Company G.	Company H.
Captain	C. F. Galligan	L. V. Hendricks
First Lieutenant	F. R. Brown	R. W. Nelson
Second Lieutenant	H. H. Siemens	L. J. True
First Sergeant	F. W. Wright	H. A. Lindgren
Sergeant	L. R. McKenzie	A. A. Ashahr
Sergeant	B. Olsen	G. F. Neefus
Sergeant	E. J. Atckison	
Sergeant	K. B. Grimm	
Corporal	V. P. Gibson	W. Lottman
Corporal	L. M. Turner	J. F. Meyers
Corporal	E. S. Dement	E. Scovill
Corporal		J. C. Leedy

Third Battalion.

Major............J. C. Plankinton Sergeant Major......J. K. Fairchild
First Lieut. and Adjt....J. F. Ketels
Second Lieut. and Q. M.......

	Company I.	Company K.
Captain	R. P. Landis	L. B. Howey
First Lieutenant	F. W. Thompson	W. Going
Second Lieutenant	L. H. Spring	R. W. Skibbe
First Sergeant	O. N. Moore	P. R. Poff
Sergeant	C. E. Armstrong	R. Anderson
Sergeant	C. A. French	B. N. Hawley
Sergeant	I. M. Morgan	H. Montgomery
Sergeant		J. W. Surry
Sergeant		O. Shattuck
Corporal	J. H. Belknap	G. Carrol
Corporal	L. E. Emery	G. Hicinbotham
Corporal	R. Mitchell	A. Lafky
Corporal	C. D. Moffitt	N. L. Simon

	Company L.	Company M.
Captain	A. Finlay	D. H. Rowe
First Lieutenant	R. H. Roberts	E. J. Silva
Second Lieutenant		S. E. Tripp
First Sergeant	B. Fowles	H. J. Eberly
Sergeant	E. Withycombe	C. W. Allen
Sergeant	C. Despain	L. Weigel
Sergeant	E. A. Olsen	A. W. Jones
Sergeant	A. M. Jeppeson	R. Schultz
Corporal	F. Boulan	E. G. Rice
Corporal	O. D. Sitton	H. H. Dean
Corporal	C. H. Eagy	J. B. Mann
Corporal	M. Koon	J. Fleming

THE SCHOOL OF MUSIC.

FACULTY.

Professor William Frederic Gaskins, M. B., Director.,
Voice Culture, Singing, Conducting, Music History.

Genevieve Baum-Gaskins,
Voice, Organ, Piano.

Professor William Robinson Boone,
Piano, Theory.

May Babbitt-Ressler,
Piano, Music Pedagogics.

William Howard Eis,
Violin, Composition, Orchestration.

Harry L. Beard,
Bandmaster.

THE SCHOOL OF MUSIC.

In response to the desire of students, their parents, and friends of the Oregon Agricultural College, provision has been made for the presentation of comprehensive courses of instruction in music.

The studious atmosphere, wholesome discipline, and attractive environment of the College are conditions favorable alike to beginners and advanced students. Children or adults may begin these courses at any time with the privilege of advancing to completion as rapidly as is consistent with creditable scholarship.

The members of the faculty have received training in the best eastern music schools and of eminent specialists; each has had ample experience in teaching; all employ superior methods of instruction and frequently give evidence of their ability, skill, and experience, by performing in public.

DEPARTMENT OF VOICE.

Professor William Frederic Gaskins, Mus., Bach.,

Voice Culture, Singing, Conducting, Music History,

Director of the School of Music.

Post graduate Hillsdale College Conservatory; post graduate American Conservatory. Pupil of Karlton Hackett, Chicago; J. Harry Wheeler, New York; J. C. Wilcox, New York; John M. Merrill, Boston; Frederic Leason, Philadelphia; J. D. Mehan, New York.

Genevieve Baum-Gaskins,

Voice, Organ, Piano.

Graduate American Conservatory, Chicago. Pupil of J. D. Mehan, New York; John J. Hattstaedt, Chicago; Karlton Hackett, Chicago; Wm. Middleschulte, Chicago; William Frederic Gaskins, Chicago.

DEPARTMENT OF PIANO.

Professor William Robinson Boone,

Piano, Theory.

Graduate Hans Schneider Piano School, Providence, R. I.; Stubbs' Choir School, New York. Pupil of Samuel Whitney, New York; Everett Truette, Boston; Everett Hill, New York.

May Babbitt-Ressler,
Pupil of Arthur Foote, Boston.

DEPARTMENT OF STRINGED INSTRUMENTS.

William Howard Eis,

Violin, Composition, Orchestration.

Post graduate American Conservatory, Chicago. Pupil of Adolf Weidig, Chicago.

DEPARTMENT OF BRASS AND WOOD WIND INSTRUMENTS.

Harry L. Beard,

Band Conducting.

Instruction in the theory and art of playing band instruments.

The faculty of the School of Music is composed of thoroughly trained musicians who often publicly demonstrate their talent and ill. They were selected from among a large number of applicants cause of their superior ability and previous success as teachers. The advantage of beginning music study with instructors skilled the psychology and practice of teaching cannot be overestimated, d results in an appreciable saving of time and expense and a ximum gain in efficiency. Hence the School of Music offers the llowing comprehensive courses of study to earnest students who sh to acquire scholarly musicianship at modest expense. These urses may be begun at any time during the school year, and all idents may advance as rapidly as is consistent with good scholarip. The time required for completion of the courses is dependent on the age, previous preparation, talent, ability and character the work of each student.

Students in the School of Music may enter classes in the several partments of the College, and to enhance their general culture e encouraged to take at least one study throughout the school ar other than the work required in the regular music courses. udents of the Oregon Agricultural College will be permitted to idy music only with instructors connected with the School of isic.

The following courses are offered:

1. **Voice I.** Exercises for correct breath control; purity of tone oduction; freedom of action and blending of registers; articulan and correct pronunciation and enunciation of vowels or connants; elements of phrasing and style. Students will appear on ograms if required, singing from memory, and will attend all citals and rehearsals unless otherwise specified.

Required: Two lessons a week in voice; practice with instruent, one or two hours daily; sight reading and ear training, one ur a week; harmony and history of music, two hours a week ch; choir and chorus practice throughout the year.

2. **Voice II.** This course consists of exercises for tone placing; rasing and style; legato, marcato and portamento delivery. hysiology of vocal mechanism, songs, and exercises of medium ade in English, German, or Italian. All students will attend citals, and appear upon program if required, singing from memory.

Required: Two lessons a week in voice; practice with instrument, one to two hours daily; two lessons a week in harmony; on lesson a week in counterpoint; advanced history of music thirty-six weeks; choir and chorus practice throughout the year.

Prerequisite: Course 1 or its equivalent.

3. **Voice III.** This course embraces the study of tone color agility; trill, messa di voce; recitation; declamation; phrasing style; songs in English, German, Italian, or French. All student are required to attend recitals and rehearsals and appear upo programs when requested, singing from memory.

Required: Two lessons a week in voice; two lessons a week i harmony and counterpoint; practice with instrument, one to thre hours daily; one lesson a week in theory and composition; choi and chorus practice throughout the year. A certificate is grante upon the satisfactory completion of this course.

Prerequisite: Course 2 or its equivalent.

4. **Voice IV.** This course embraces advanced work in voca technique by means of difficult exercises, songs, oratorios, operati arias, memory singing in public; all students are required to atten recitals and rehearsals and appear upon programs when requested

Required: Two lessons a week in voice; practice with instrument, one to three hours daily; choir and chorus practice throughout the year. A gold medal will be granted upon the satisfactor completion of this course.

Prerequisite: Course 3 or its equivalent.

5. **Piano I.** In this course the student is required to memoriz and play with correct fingering all chromatic major and bot forms of minor scales, legato in quarter and eighth notes; arpeggios formed on major and minor triads; major and minor chord in triad and four-note form; dominent seventh chord; four-not form with all inversions played with sustained arm touch, hand separately; figured chords in quarter and eighth notes; octave and staccato octaves in any required scale; sight reading, and si compositions of third grade.

Required: Two lessons a week on piano; two lessons a week i harmony; two lessons a week in music history; practice with instrument, three to four hours daily.

Prerequisite: Preparatory work of such scope as to insure fair iolarship.

;. **Piano II.** The work of this course requires that the student iy from memory with correct fingering, all major, minor, and :omatic scales; dominant and diminished seventh chords with ›ir inversions; broken chords played in quarter and eighth notes;)eggios formed on the major and minor triads, metronome quarter te; one hundred; staccato octaves in major scales, quarter and ;hth notes; sight reading; recognition of major and minor scales, l all intervals from the tonic of the major scale.

[n addition to the above, the student must have satisfactorily npleted advanced music history in the regular second year class.

Required: Two lessons a week on piano; two lessons a week in rmony; one lesson a week in counterpoint; two lessons a week in vanced music history for thirty-six weeks; practice with instru-nt, three to four hours daily.

Prerequisite: Course 5 or its equivalent.

7. **Piano III.** In addition to the foregoing courses, ; student must play from memory with correct fingering, major d minor scales in thirds, sixths, and octaves, similar and contrary)tion, compass four octaves, in quarter, eighth, and sixteenth tes; triplet rhythms in quarter and eighth notes; metronome arter note 120; tempo scales studied to metronome quarter note 0-130; major and minor chords in triad, and four-note form; minant seventh and diminished seventh chords four-note form, tended and broken with all inversions and in moderate tempo; peggios formed on the major and minor common chords; and be le to transpose easy hymns; sight read readily; to play from emory five compositions of the preceding grade in a satisfactory inner.

Required: Two lessons a week on piano; two lessons a week for irty-six weeks in harmony and harmonic analysis; one lesson a eek in counterpoint; practice with instrument three to five hours ily.

Prerequisite: Course 6 or its equivalent.

8. **Piano IV.** The technical tests in this course will be similar those in the previous courses, except that the tempo will be

increased, with additional study of unusual fingerings and chord formations. Exercises in scales in double thirds, and sixth in parallel motion will be required to be played in quarter and eighth notes; sight playing, transposing, and extemporaneous harmonizing melodies at the keyboard; students will be required to play at sight a composition equally as difficult as Beethoven's Sonata in A Flat, op. 26, and must be able to transpose and play at sight in any given key, a simple hymn or chorale. For graduation students are required to perform publicly under the direction of the School of Music, playing a program not less than one hour in length, arranged by the instructor and approved by the Director and which shall include two or more numbers equal in difficulty to any compositions in the list of senior pieces.

Following is the list of senior pieces, of which the student must play ten from memory: Wagner-Liszt—Tannhauser March; Chopin—Scherzo in B Minor, op. 31; Mendelssohn—Rondo Capriccioso, op. 14, Prelude and Fugue in A Minor; Variations Serieuses; Schumann—Kreisleriana, op. 16, Carnival, op. 9; MacDowell—Marzwind and Wald-Idyllen, op. 19, Nos. 1, 3, and 4; Weber—Polacca Brillante op. 72, Fugue in A Minor—Bach, or his Italian Concerto; Suite in D—Handel; Caprice Espannol, op. 37—Moskowski; Concert Etude op. 36—MacDowell; Ballade—Grieg; Liebstod (Tristan and Isolde) —Liszt; Bach, Chromatic Fantasy and Fugue; Brahms, Ballade Scherzo in E Flat Minor, op. 4. Beethoven Sonatas, op. 53 and 57. Chopin, Ballade in A Flat. Grieg, Ballade, Sonata in E Minor. Liszt, Hungarian Rhapsodies, Nos. 2 and 6. Mozart Fantasia in C Minor, Sonata in F. Rubinstein, Staccato Etude Concertos by Beethoven, Chopin, Henselt, Hummel, Liszt, MacDowell, Mendelssohn, Mozart and Sain-Saens, or five others a teacher's option. A gold medal will be granted upon the satisfactory completion of this course.

Required: Two lessons a week on piano; practice with instrument three to five hours daily; two lessons a week in composition

To satisfactorily complete this course the student must fulfi the requirements above outlined and appear in programs whe required.

9. **Theory.** The course in Theory will comprise systematic and progressive study in the elements of music. Consideration will be given to the theories of acoustics, to notation, scales, keys, modes, intervals, melodic progression, tempo, dynamics, rhythm and ear training. Advanced theory will embrace harmony, counterpoint, and subdivisions thereof, music history, concluding with form, composition and orchestration.

10. **Violin I.** This course is preparatory and designed to develop correct fingering, free bowing, and accuracy as to pitch and rhythm. Appropriate studies by the following composers, or acceptable equivalents, are required for satisfactory performance before advancing to course 11: Schubert, Dancla, DeBeriot, Pleyel duets, Dort, Hayser. Accurate playing of all major and minor scales is required; students must appear in public recitals when requested, playing from memory.

Required: Two lessons a week, harmony and music history, as in course 5.

11. **Violin II.** Prerequisite: Course 10. Studies by David Kayser, Schradieck, Kreutzer, or acceptable equivalents, for accuracy in playing all positions, and skill in scales and arpeggios at rapid tempos. Suitable solos, concertos, sonatas, etc., also ensemble playing at discretion of instructor. Students must appear in public recitals when requested, playing from memory. A certificate is granted upon satisfactory completion of this course.

Required: Two lessons a week, harmony, counterpoint and advanced music history as in course 6.

12. **Violin III.** This course comprises the most advanced studies by Fiorillo, Rode, Paganini, Bach, concertos and sonatas of the old and modern schools, solos by Vieuxtemps, Wieniawski, and other compositions of similar difficulty. Students must appear in public recitals when requested, playing from memory.

To graduate, the student must satisfactorily complete the above or its equivalent, complete theory course 7 (as outlined for Piano III), and give public recital, playing from memory program not less than an hour in length, arranged by instructor and approved by Director.

13. **Band.** Instruction will be given by the regular College Band Leader in the use of brass, wood, wind, and percussion instruments.

To become a member of the College Band a student must pass a satisfactory examination in the elements of music and ability to perform on his instrument.

Members are required to attend rehearsals each school day and a reasonable amount of individual practice is expected.

There is no charge for instruction in the band. Each member must furnish his own instrument and music stand, except basses, baritones, altos, and drums, which are furnished by the College.

At the beginning of the college year the band will adopt the low pitch, as this is used by the best professional bands throughout the United States. Any student desiring to enter the band should see that his instrument is in low pitch.

The courses for the various band instruments are as follows:

Cornet—Methods by Arbou, characteristic studies by St. Jacome.

Clarinet—Methods by Dieppo; studies by Dieppo and Blume.

French Horn—Methods by Franz; studies by Franz and Kayffman.

In all other band instruments, including the oboe, bassoon, saxaphone, alto, and bass clarinets, drummers' traps, xylophone, and orchestra bells, the courses will be similar to those given above.

The work in theory required to complete these courses is similar and equivalent to that outlined for piano courses 5 and 6.

GENERAL INFORMATION.

Non-resident young women are required to live in Waldo Hall, where their conduct is subject to the approval of the Dean of Women. Outside rooming and boarding places may be obtained subject to the approval of the College authorities. The rates for board and room are reasonable and may be had upon application to the Dean of Women.

Lessons in all departments are of thirty minutes duration.

Voices will be tested free of charge by appointment with the Director.

Pianos for practice will be available for students of the School of Music at reasonable rentals. These pianos will be of good quality and kept in good condition. Students of the School of Music not owning pianos will not be permitted to practice upon instruments outside of the School of Music unless by special arrangement with the Director.

This will always insure superior instruments for private use at regular periods. Students will be required to practice alone unless furnished with written permission from the Director.

Any injury to instruments, besides the normal wear and use in practice, must be paid for by the student or persons responsible therefor. Music will be furnished pupils through the School of Music or the local dealers at teachers' rates. Thus students will secure the necessary exercises, studies, songs, and pieces, at the lowest cost. In all but exceptional instances, music for use in the chorus and choir will be furnished free by the College. That students will be given every encouragement for thorough and economical study is obvious.

Recitals will be given every month, or oftener, by members of the faculty, or of various classes, at which every student of the School of Music is expected to be present.

The Glee and Mandolin Clubs and Orchestra give frequent public recitals and concerts, and each has at least one rehearsal a week. Information concerning membership in these organizations may be obtained by application to the Director.

Choir and Chorus Practice. Membership is free to students of the College, and open to talented singers not connected therewith by payment of a nominal fee at the College business office, and acceptance of qualifications and credentials by the Director.

It is the intention to conduct one chorus rehearsal each week.

Several concerts will be given during the year, in which oratorios, operas, and mixed choruses will be sung. Whenever practicable, operas will be presented with appropriate costumes, action, and scenery.

Applicants for instruction may take complete or partial courses. Those registering for the former are classified as ''regular music,'' while others are classified as ''special music.''

Any student in the Oregon Agricultural College may take at least one lesson a week in music if of satisfactory scholarship in his major course.

All students connecting themselves with the School of Music thereby agree to observe its rules and requirements.

No student is permitted to omit lessons or practice without sufficient excuse, and no refund will be made for absence from lessons or practice, or for discontinuance, except in cases of severe illness. For unavoidable absence, lessons may be made up only by appointment, and before the expiration of the term.

The school year consists of three terms of twelve weeks each, beginning September 23.

Registration and incidental fee, $1.00 a term; payable in advance at the beginning of each term.

Tuition for instruction is as follows, payable in advance by the term, at the business office of the Financial Secretary. Less than twelve lessons will not be given except by special arrangement with the Director.

Voice. Professor Gaskins. Private instruction.

Twelve lessons, one a week	$12.00
Twenty-four lessons, two a week	24.00
Thirty-six lessons, three a week	36.00

Voice, Piano. Genevieve Baum-Gaskins. Private instruction.

Twelve lessons, one a week	$12.00
Twenty-four lessons, two a week	24.00
Thirty-six lessons, three a week	36.00

Piano. Professor Boone. Private instruction.

Twelve lessons, one a week	$12.00
Twenty-four lessons, two a week	24.00
Thirty-six lessons, three a week	36.00

Piano. May Babbitt-Ressler. Private instruction.

Twelve lessons, one a week	$12.00
Twenty-four lessons, two a week	24.00
Thirty-six lessons, three a week	36.00

Violin. Instructor Eis. Private instruction.

Twelve lessons, one a week	$12.00
Twenty-four lessons, two a week	24.00
Thirty-six lessons, three a week	36.00

Band Instruments. Instructor Beard. Private instruction.

Twelve lessons, one a week	$ 9.00
Twenty-four lessons, two a week	18.00
Thirty-six lessons, three a week	27.00

Music History.

Two hours a week, a term	$ 3.00

Theory, Harmony, Counterpoint, Composition, in class instruction.

Two hours a week, a term	$ 6.00

Rentals. Pianos for practice will be furnished students of the School of Music at the following rates:

Term of twelve weeks, one hour a day	$ 3.50
Two hours	6.00
Three hours	8.50
Four hours	9.50
Five hours	10.00

For additional information, address William Frederic Gaskins, Director, Administration Building, Oregon Agricultural College, Corvallis, Oregon.

WINTER SHORT COURSES.

Upon the farms and in the homes of this state are thousands of young people who are to become the farmers, gardeners, stockmen, orchardists, housekeepers, and home-makers of the future. To keep pace with the rapid development in the science, art, and practice of agriculture and home-making, and thus be enabled to attain the highest possible success, in these fields of endeavor, one should obtain as much special training as possible. Many of these young people, however, are so situated that it is impossible for them to attend any of the regular four-year courses in these subjects. There are also, no doubt, many mature farmers, and housewives, well past the usual school age, who desire to acquaint themselves more fully with the most recent developments in their respective lines of labor. To meet the needs of such persons, both young and old, various plans have been adopted in the several states, the most important of which are the Farmers' Institutes and the Winter Short Courses.

During the past thirteen years the Oregon Agricultural College has, each winter, offered a two-week course of lectures and demonstrations which has been known as the Short Course in Agriculture. During the greater portion of that time there has also been offered each year a six-week course in dairying for those who desired to obtain some knowledge of modern dairy and creamery methods. These courses have been so generally successful and have called forth so many expressions of approval from those who attended them, that last year it was decided to enlarge the scope of this work, and accordingly the College now offers the following eight courses for the coming winter:

Agronomy, Animal Husbandry, Dairy Husbandry, Poultry Husbandry, Business Methods, Mechanic Arts, Domestic Science and Art, Forestry, Music, and ''Farmers' Week.''

Each of these courses, except the one in Mechanic Arts, which will consist entirely of practical work in the shops or in the draughting room, will consist of a series of lectures supplemented by demonstrations, and by practical exercises in the dairy, the orchard, and the various laboratories.

The work offered will be adapted to the practical needs of farmers, fruit-growers, dairymen, mechanics, or of women in the home. It is believed, also, that teachers who desire to prepare themselves to teach elementary agriculture, now required in our public schools, will find these courses decidedly helpful.

The various courses are so planned as to provide the largest amount of practical information in the short time available. The subjects to be discussed are those in which every farmer should be interested, and the aim will be to present them in the most practical manner possible. The laboratories and collections, the shops, the creamery, the orchards, the college farm, the cutting, fitting and sewing rooms, the dining rooms and kitchens, all offer facilities for demonstration or for practical exercises by the students attending these courses.

Students should report to the deans of the various courses for registration and for assignment to the various classes. A list of boarding and lodging places may be consulted at the office of the Y. M. C. A.

No entrance examination or other educational test will be required; but no one will be received who is less than sixteen years of age. Over five hundred men and women registered in these courses in 1910, their ages ranging from sixteen to over fifty.

There will be no fees whatever for attending the exercises of Farmers' Week. Those who attend the other courses will be expected to pay a registration fee of $1.00. In addition, students in the six-week course in Dairying will pay a laboratory fee of $2.00 and a breakage deposit of $3.00; those in Mechanic Arts will pay a fee of $2.00 for the course in blacksmithing and $2.00 for woodwork; those in Household Science and Art will pay a fee of $1.50 to cover cost of materials used in the course in cookery, and each student will be expected to furnish her own materials for all other classes. Board and lodging may be had in Corvallis at $3.50 to $4.50 per week.

A pleasing and profitable feature of these courses will be a series of lectures by some of the most prominent men of the State—

men who are especially well qualified by successful experience to speak upon some particular phase of Agriculture.

"Farmers' Week." The exercises of Farmers Week will begin Tuesday, February 13, and close Saturday, February 17. They will be conducted somewhat upon the plan of an extended farmers' institute and will consist principally of lectures, supplemented by such demonstrations and practical exercises as are made possible by the equipment of the College and Experiment Station. The aim of the course will be to give to those in attendance the largest possible amount of information regarding the principles of successful agricultural and horticultural practices. The lectures and demonstrations by the various members of the faculty will be supplemented by one or more lectures each day by some of the most successful men of the State.

Are you interested in your own soil and its improvement, in the growth of clover, alfalfa, vetch, kale, and other crops; in better, more economical and more profitable feeding of dairy cows and other stock, or in their diseases? Do you wish to know how to bud and graft; how to pack your fruit successfully; how to distinguish the principal crop pests and how to control them; how to use the Babcock test? Are you interested in walnut growing? If so, be sure to attend this Farmers' Week. Bring your problems with you. Come prepared to ask questions and let all talk them over together. A large number of the most successful farmers in the State will be here. Be one of them! The railroads will be asked to give special rates, of which further announcements will be made.

All six-week courses begin Tuesday, January 3, 1911.

AGRONOMY.

While all of the Short Course subjects in Agronomy described below are offered chiefly for the benefit of Short Course students in Dairy Husbandry, Horticulture, and Animal Husbandry who must have information along the lines suggested, yet there are an increasing number of Short Course students who are not specializing in dairying and fruit growing but, like the great majority of

Oregon farmers, are engaged in general agriculture. These students, representing as they do the largest class of farmers in the State, should receive every encouragement in securing the broad training in practical agriculture which they so much need. To this end the Short Course in Agronomy has been so enlarged as to permit students engaged in general agriculture to devote the major part of their time to it, yet allowing them also to take a few subjects in such other departments as may seem advisable.

For this work, the three Agronomy laboratories, for the use of students in soils, crops, and farm machines, are second to none in the country. The Experiment Station farm and the Agronomy library are also valued adjuncts to the other facilities for this work. Instructions will be given through lectures, readings, demonstrations, laboratory and field practice. No entrance examinations. Recommended expenditure for books, three dollars.

1. **Farm Soils.** Fundamental facts related to the soil and its handling. Soil structure, soil moisture, moisture conservation in Oregon, irrigation in Willamette Valley, soil heat and air, soil bacteria, tillage, soil sampling, soil judging.

Three hours per week.

2. **Soil Building.** Profitable crop rotations for every kind of farming. Value, preservation, and correct use of farm manures. The good and bad features of each of the soil types of Oregon and the crops and treatment adapted to each.

3. **Forage Crops.** Pasture, hay, soiling, and silage crops from seed to cutting and storage. Testing seeds, sources and improvement of seed, pasturing vs. soiling, soiling crops, silage, alfalfa in Western Oregon.

Three hours per week.

4. **Seed Crops.** Production of small grains for seed. Vetch, kale, alsike, red clover, and corn, seed production. Seed potatoes, alfalfa and field pea seed in Eastern Oregon.

Two hours per week.

5. **Farm Machines.** The construction and best use of tillage and seeding implements; of harvesting, grinding, and pumping

machines. The examination and testing of farm engines for efficiency and cost of running.

Three hours per week.

6. **Farm Structures.** The designing and drawing of plans, with specifications and cost estimates, of farm houses and barns to fit home conditions. Building of concrete posts, tanks, walks, foundations, etc.

Two hours per week.

7. **Farm Drainage.** The need of and the benefits derived from tile drainage. The location and laying of drains, the cost and efficiency thereof.

Three hours per week.

8. **Farm Management.** The choosing and laying out of a farm. The economic handling of the fields, labor, structures, machines, and stock, on successful farms. Farm sanitation, farm markets, country roads.

Two hours per week.

ANIMAL HUSBANDRY.

The work in this department will consist of a popular discussion of the practical problems relating to breeds and breeding; feeds and feeding, stock judging and care of farm live stock in health and disease.

It is a recognized fact that animal husbandry is the corner stone of successful farming. Thus every student in agriculture should at least possess a knowledge of the fundamental principles of one of the most important industries of the farm.

Breeding. This will consist of lectures on selection, heredity, atavism, and the dominant principles of reproduction.

Breeds. A study of the characteristics and adaptability of the various breeds and classes of live stock for the Oregon farm.

Feeds and Feeding. Will consist of text-book work in the various problems of feeding and animal nutrition. A study of rations for milk and meat production and the value of home-grown feed as compared with commercial food stuffs.

Judging. Practical work in score-card and judging by comparison will be given. The college herds and flocks will be available, which consist of five breeds of cattle, three breeds of draft horses, two breeds of sheep, and two of swine. In addition to this, at least two carloads of some of the best stock the State affords will be brought in for use in this course.

Veterinary. A popular discussion of the common ailments of farm live stock.

The student may elect to take the whole or any part of this work in connection with work in other departments.

DAIRY HUSBANDRY.

The course in Dairying is designed to familiarize the student with the modern forms of dairy apparatus, and teach the underlying principles in the production, care, and manufacture of milk, into butter and cheese. Both the how and the why will be the aim of the instructors, and it is the intention that the ideas set forth will be applicable to the farm dairy as well as the larger creamery or cheese factory.

Students will meet for work six days per week. The forenoon of each day will be mainly occupied in laboratory work in cream separation, buttermaking, milk testing, and cheesemaking. In the afternoon, lectures and recitations will occupy the time.

The dairy herd consists of representatives of the leading dairy breeds, thus enabling the student to become familiar with the characteristics of dairy animals. A milking machine will be in operation at the dairy barn, and students will have an opportunity to become familiar with its use, as well as the methods of feeding, testing, and keeping the records of the dairy herd.

Special Expenses.

General fee (for material used)	$2.00
Laboratory deposit (mostly returnable)	2.00
Books	5.00
White suit	1.50

The laboratory deposit is partly to cover value of lock, key, and glassware loaned the student, and will be refunded at the close of the term, less the value of apparatus not returned by the student.

Michel's ''Creamery Butter-Making,'' Farrington & Woll's ''Testing Milk and Its Products,'' Decker's ''Cheese-Making,'' and Conn's ''Practical Dairy Bacteriology,'' will be the principal books used.

In addition to the classes conducted by the regular dairy instructors, work will be given in the departments of Agronomy, Animal Husbandry, Bacteriology, and Commerce.

POULTRY HUSBANDRY.

Poultry-keeping is an important part of every well-regulated system of diversified farming, and in favorable locations it offers splendid opportunities as a special business. It requires study and experience, however, to make it a success. The winter course students will be given every opportunity with the time available to acquaint themselves with the practical as well as theoretical side of modern poultry-keeping.

The Poultry department is equipped with a number of poultry houses of different types; about 300 fowls of different breeds; eighteen incubators, representing several different makes; brooders and brooder coops, bone and clover cutters, trap-nests. Sets of charts, lantern slides and photographs are used to illustrate breeds of fowls, poultry houses and poultry farms.

HORTICULTURE.

The work offered in Horticulture is very broad, including Fruit Growing, Truck Gardening, Nursery Practice, and Landscape Gardening. The courses consist of lectures, text-book, and field exercises, and are designed to give the training that will enable our students to take charge of orchards or to assist them in developing fruit lands.

1. **Fruit Growing.** A series of lectures, recitations, and readings on the general principles of fruit growing and the special culture of our leading fruits, such as apples, pears, peaches, grapes, small fruits, and nuts.

2. **Orchard Practice.** This course deals with the practical application in the orchard of the principles of fruit growing discussed in the previous course.

3. **Apple Packing.** A four-week course is offered in which two hours' practice is given each day, thus giving ample time in which to become proficient. Expert packers will be on hand to give instruction in the most up-to-date methods of grading and packing.

4. **Plant Propagation.** In this course instruction will be given in the proper methods to be used in top-working old orchards and in nursery practice and walnut grafting.

5. **Vegetable Gardening.** Attention will be given both to the home and commercial phases of vegetable growing. Problems dealing with locations, soils, cultivation, rotation and succession of crops, harvesting, storing, and marketing will be considered.

6. **Landscape Gardening.** This course deals primarily with the principles of landscape gardening as they are adapted to the country home, school yard, or church.

7. **Orchard Pests.** The identification and control of orchard pests will be taken up by lectures and practicums.

8. **Hot Beds and Cold Frames.** This course will consist of exercises dealing with the proper construction and use of cold frames and hot beds.

In addition to the work offered above, an opportunity will be given to take work in other departments.

FORESTRY.

The Short Course in Forestry will consider those topics of special and general interest to rangers, fire wardens, and cruisers. Incidentally, however, subjects of great importance to timbermen, loggers, and millmen will be considered. The general aim will be to make a thoroughly practical course, and to this end a series of lectures, laboratory exercises, and field work will be given to cover the following phases of forestry.

Forest Measurement. (a) Demonstrations afield. Methods in common use; defects; how to estimate; grading standing timber; methods and estimating from logs, mining timbers, cordwood, bolts, etc.

(b) Valuation survey methods; construction of volume tables; scaling.

Surveying. Use of compass and chain; magnetic variations; surveying claims; closing, tying corners, meanders, and triangulation.

Mapping. Use of instruments; graphic representation, contour intervals, hachures, lettering, symbols, drawing to scale; special systems used by the national service in timber sales, agricultural settlements, boundary reports, etc.

Engineering. Use of level, laying out roads, trails, ditches; principles of bridge construction.

Law. Land, mining, live stock, water and fruit laws which affect national forest administration. Rules of practice before the land offices.

Policies. Why national or state forests; timber sales, grazing policies, duties of forest officers.

Methods. Regulations governing disposal of timber, range, land, rights of way; protection against fires, trespass and other injuries. Improvement work, fiscal matters, investigations, permits, reports, and general supervision.

Silviculture. The botany of the tree; silvicultural characteristics; tree requirements, soil, water, light, heat; reproduction after cutting, seedage; chiefly field work.

Geology. Common minerals, manner of occurrence; lode and placer work; how to select ore samples; soil erosion; simple methods of determining the validity of coal and mineral claims.

General Lectures. Veterinary, horseshoeing, blacksmithing, packing, camp equipment, camp sanitation; first aid to the injured; tree diseases and pests; range problems; forage values; methods of handling sheep and cattle on the range; the lumber market and timber values. Conservation principles.

DOMESTIC SCIENCE AND ART.

The purpose of the work planned for the students who enter the winter course classes in Domestic Science and Art is the consideration of home problems through practical work in laundrying, cooking, and sewing, together with lectures and conferences upon problems connected with the home, such as home sanitation, home nursing, house furnishing and decoration, and home gardening. An effort will be made during the last week of the course to give a thorough review of the work accomplished in such a manner that it may be possible for farmers' wives who come for Farmers' Week only, to attend Domestic Science and Art classes and lectures with interest and profit.

Cooking. The classes in cooking will be instructed in the proper methods of cooking each class of foods, vegetables and fruits, including salads, meats and fish, flour mixtures, pastries and desserts of various kinds; attention will be given to good combinations with reference to proper proportions of food principles, palatability, and attractiveness. Family meals and meals for special occasions, such as dinners, luncheons, receptions, and teas, will be served by the class. A brief study of the food required at various ages in health and in ill health will be made, including the preparation of school lunches; an invalid tray and proper food for babies, children, and the aged. The course will cover lectures on such subjects as the selection and care of dining room and kitchen furnishings, the laying of the table and dining room decorations.

Laundry Work. The principles of laundry work are taught through practical application. The subjects considered, illustrated by practical work are: the treatment of hard water, choice of starch, bluing and soap, laundrying of bed and body linen, dresses, waists, collars and cuffs, flannels and table linen, removal of stains, cleaning of laces and colored embroideries.

Sewing. An opportunity will be offered in the sewing classes for those who have little knowledge or experience in sewing to learn correct methods of sewing through the construction of simple articles. Each student will make a set of underwear, and if time will permit, a dressing jacket, kimono, or other simple garment.

Bought patterns will be used for some of the articles to be made, the student will be taught to draft simple patterns to be used in the making of other articles. The best way of using, fitting and changing these patterns and the most economic methods of cutting material will be shown.

For students who sew well, and have had considerable experience in sewing, classes in advanced work will be offered. This course will consist of lessons in drafting and in some of the principles of dressmaking. Drafts for waists, sleeves and skirts will be given and students will be taught how to make patterns for dresses from any design in the fashion magazines or designs made by themselves. Each student will make one or more dresses, using some lightweight material in cotton, silk, or wool. The material and design of the dress will be chosen in accordance with the occasions for which the dress is to be used.

ENGINEERING AND MECHANIC ARTS.

Realizing the fundamental importance of this subject, the Oregon Agricultural College offers a four-week course in surveying and road construction. The course will be adapted to the needs of farmers and road officials. The work will be divested, as far as possible, of all technicalities and may be taken by anyone with a good working knowledge of arithmetic.

Road Construction. The course in Road Construction will follow in a general way Baker's ''Roads and Pavements.'' Other authorities, including the literature supplied by the Office of Road Inquiry of the Department of Agriculture and various state publications, will be freely drawn upon and used.

Earth, gravel, and broken stone roads will each be studied. Drainage and its importance to highway construction, including methods of drainage, carrying capacity of tile, manner of laying tile drains, determining proper grades for drains, etc., will be carefully studied.

Methods of repair and maintenance will be given due consideration. Every effort will be made to make this course practical and useful. Two hours per week.

MECHANIC ARTS.

Four courses are offered in Mechanic Arts. These courses extend through six weeks and are practicums or laboratory courses where the student actually performs the work, receiving instructions in principles and methods involved at the same time.

Woodwork. To those who are not already familiar with such matters, instruction and practice will be given in sharpening chisels, planes, and other edge tools, in filing and setting saws, and in the use of the carpenter's square in framing braces, rafters, hips, etc.

Practical mechanics, who already have a working knowledge of hand tools, may obtain instruction in band sawing, jig sawing, wood turning, and work on the moulder.

The time required for this course is two consecutive periods daily.

Blacksmithing. This course is offered to those who desire to learn how to make simple repairs and improvements about the farm and shops. Instruction is given in building and managing a forge fire, in bending, forging and welding iron, making and threading bolts and nuts, also in making and tempering punches and cold chisels.

The full course requires attendance during two consecutive periods daily.

Mechanical Drawing. It is the purpose of this course to aid those who desire to obtain sufficient knowledge to enable them to make rough plans of buildings, or drainage systems, or sketches of machinery, as well as to read intelligently complete drawings.

No costly or elaborate set of instruments will be required for this work. The purpose of the course is to meet the requirements of the farmer or mechanic rather than those of the engineer.

Time required, two periods daily.

Gasoline Engine. Those who desire to become familiar with the care and operation of small gasoline engines may do so by taking the work on Saturdays under a competent instructor.

BUSINESS METHODS ON THE FARM.

The Oregon Agricultural College is taking a leading part among schools in emphasizing the business side of farming, the shop, and the household. The fact that there is a business side to every vocation has been recognized by providing a course in bookkeeping, business practice, and commercial law especially adapted to the need of short-course students. The course will consist of simple methods of keeping farm accounts and statistics; the organization of a model farm from the financial point of view; marketing products; legal forms, etc. The actual work will be done by the students so far as the time will permit. This course is given by the School of Commerce. All short-course students are eligible to take the work.

MUSIC.

Students who register in the Short Courses beginning January 3, 1911, may receive instruction in pianoforte, voice culture, and singing, violin and other stringed instruments, wind instruments of all kinds, harmony, music history, and chorus singing, by making application to the Director of the School of Music, room 37, Administration Building. Catalogue of regular music courses, containing also detailed information regarding fees, mailed free to all applicants.

CATALOGUE OF STUDENTS.

(Key to abbreviations following students' names: Agri.—Agriculture; D. S.—Domestic Science and Art; C. E.—Civil Engineering; Elec.—Electrical Engineering; Mech.—Mechanical Engineering; Mech. Arts—Mechanic Arts; Min.—Mining Engineering; Com.—Commerce; Phar.—Pharmacy.)

GRADUATES.

Name.	Course.	Postoffice.	County.
A. Louis Briggs	Com.	Cottage Grove	Lane
Edward Cleveland Callaway	Phar.	Spokane, Washington	
Cecil Carl Clark	Agri.	Portland	Multnomah
William Harling Davolt	Elec.	Kelso, Washington	
Glen DeHaven	Agri.	Rickreall	Polk
Alice Leora Edwards	D. S.	Monroe	Benton
Frederick Llewellyn Griffin	Agri.	Corvallis	Benton
Laura Hill Griffin	Agri.	Corvallis	Benton
Violet Hancock	Com.	Cove	Union
Alicia Pearl Horner	Com.	Corvallis	Benton
Charles Harry Howard	Elec.	Corvallis	Benton
Ernest Allsworth Hudson	C. E.	Milton	Umatilla
Vesta Kerr	D. S.	Corvallis	Benton
James Koeber	Agri.	Sherwood	Washington
Fred Marshall McHenry	Com.	Corvallis	Benton
Modesta Florence Rosendorf	Com.	Corvallis	Benton
Edna Mae Russ	D. S.	Corvallis	Benton
Mulk Raj Soi	Elec.	Batala, India	
Helen Maude Sprague	D. S.	Corvallis	Benton
Marion Louise Sproat	Com.	Hood River	Hood River
Peter Chris Zimmerman	Elec.	Yamhill	Yamhill

SENIORS.

Name.	Course.	Postoffice.	County.
Albert George Emil Abendroth	Min.	Portland	Multnomah
Frances Alva Aitken	D. S.	Portland	Multnomah
Harry Asbahr	Agri.	Cornelius	Washington
Torrey Lynn Austin	C. E.	Liberty, Idaho	
Grace Monemia Bath	D. S.	Hillsboro	Washington

Name.	Course.	Postoffice.	County.
Beulah Beeler	D. S.	Corvallis	Benton
Henry Bergman	Mech.	Gardner	Douglas
Everett Monroe Billings	Elec.	Union	Union
Walter Bjerregaard	C. E.	Ephraim, Utah	
Otto Karl Blackaby	Mech.	Ontario	Malheur
Hedwig S. Bleeg	D. S.	Hillsdale	Multnomah
Latimer Hobart Booth	Elec.	Mt. Hood	Hood River
Harry David Bowman	Elec.	Hillsboro	Washington
LeRoy Breithaupt	Agri.	Clackamas	Clackamas
Frank Ross Brown	Agri.	Camas, Washington	
Urie Eugene Brown	Min.	Shedds	Linn
Chloe Allen Burris	Elec.	Caldwell, Idaho	
Harry Palmer Cady	Elec.	Corvallis	Benton
Elmer Dewitt Calvin	C. E.	Amity	Yamhill
Emil Elmo Carroll	Phar.	Union	Union
Edith Hazel Casteel	Com.	Yaquina	Lincoln
Mary Enid Cate	D. S.	Corvallis	Benton
Bliss Lucius Clark	Agri.	Hood River	Hood River
Oliver Kenneth Cole	Elec.	Turner	Marion
Frank Wood Connell	C. E.	Hillsboro	Washington
Grace Elizabeth Connell	D. S.	Hillsboro	Washington
Malcolm Robert Cox	Min.	Schurz, Nevada	
Bertha Leona Cramer	Com.	Corvallis	Benton
Wren Clark Crews	C. E.	Toppenish, Washington	
Homer Morton Cross	Agri.	Hebo	Tillamook
Howard C. Cunningham	C. E.	Fort Klamath	Klamath
Mabry Zerilda Currin	D. S.	Heppner	Morrow
Robert Leroy Davidson	C. E.	Union	Union
Mary Louvia Davis	Com.	Corvallis	Benton
Clarence Cummings Dickson	Agri.	Shedds	Linn
Minnie Diven	Com.	Vale	Malheur
Ezra Stephen Dixon	Min.	Forest Grove	Washington
Anna Leta Edington	D. S.	Corvallis	Benton
Bertha Beulah Edwards	D. S.	Monroe	Benton
Harry John Evans	Min.	Bourne	Baker
Fred Egerton Ewart	Elec.	Portland	Multnomah
Alvin Finlay	C. E.	Portland	Multnomah
Russell Harrison Fleser	Elec.	Union	Union
Carl Francis Galligan	Agri.	Hood River	Hood River
Joseph Allen Ganong	C. E.	Oregon City	Clackamas
Vincent Paul Gianella	Elec.	Honcut, California	
Beulah Gustavia Gilkey	D. S.	Corvallis	Benton
Wallace Going	Elec.	Portland	Multnomah
Agnes Goodrich	D. S.	Dayton	Yamhill
Julius Gordon	Elec.	Portland	Multnomah

Name.	Course.	Postoffice.	County.
Lyle Vallington Hendricks	Phar.	McMinnville	Yamhill
Bertha Emma Herse	D. S.	Corvallis	Benton
Ruth Jeannette Hess	D. S.	Portland	Multnomah
Isabella Horner	D. S.	Corvallis	Benton
Frances Houston	Com.	Kalispell, Montana	
Leland Barton Howey	Com.	Coquille	Coos
Zoe Irwin	D. S.	Corvallis	Benton
Laura Estella Jackson	D. S.	Lorane	Lane
John Frederick Ketels	Phar.	Portland	Multnomah
Richard Percy Landis	Phar.	Albany	Linn
Myrtle Lay	D. S.	Molalla	Clackamas
Esther Vestal Leech	D. S.	Grants Pass	Josephine
John Donald Lines	Mech.	Albany	Linn
Fred Samuel McCall	Agri.	Salem	Marion
Max Adams McCall	Agri.	Scio	Linn
Frederick Emmett McGrew	Com.	Portland	Multnomah
Gertrude Elizabeth McHenry	Com.	Corvallis	Benton
Glenn Kenneth McKenzie	Min.	Kalama, Washington	
Wayne Carl McLagan	Elec.	Tangent	Linn
James Stewart McMahan	C. E.	Corvallis	Benton
Harold Dickson Marsh	Mech.	Portland	Multnomah
Siegfried Maurer	Min.	Eugene	Lane
Frank M. Moore	Phar.	Ashland	Jackson
John Armour Muldrick	Min.	Canyon City	Grant
Robert W. Nelson	C. E.	Lafayette	Yamhill
Ira Edward Newsom	Phar.	Portland	Multnomah
Howard O'Connor	C. E.	Montague, California	
Bhola De Pande	Agri.	Dehra Dun, India	
Bessie Florence Parsons	D. S.	Albany	Linn
Frederick Eugene Pernot	Elec.	Corvallis	Benton
Jack Francis Pernot	For.	Corvallis	Benton
Ivy Cecil Peterson	Com.	Beaverton	Washington
Edgar George Pickler	Min.	La Grande	Union
John Clyde Plankinton	Elec.	Dallas	Polk
Joel William Powell	Elec.	Hood River	Hood River
Horace Minor Propst	Elec.	Albany	Linn
Irving Province	Com.	Mitchell	Wheeler
Elta Raber	D. S.	Corvallis	Benton
Roy Eugene Rawson	Elec.	Vancouver, Washington	
Ralph Waldo Rees	Agri.	Newberg	Yamhill
Jay Merritt Reynolds	Agri.	La Grande	Union
Charles Percy Richards	C. E.	Asotin, Washington	
Katie Maysel Ridgeway	D. S.	Buell	Polk
Ray H. Roberts	Agri.	Lebanon	Linn
Emily Fern Rodgers	D. S.	Portland	Multnomah

Name.	Course.	Postoffice.	County.
Alvhild Romtvedt	D. S.	Toledo	Lincoln
Gordon Rosendorf	Phar.	Corvallis	Benton
Donald Hefley Rowe	Min.	Portland	Multnomah
Adolph Harry Schmidt	C. E.	The Dalles	Wasco
Walter Earle Sears	Phar.	McCoy	Polk
Raymond Seely	Agri.	Sherwood	Washington
Oliver Park Seim	Mech.	Astoria	Clatsop
William Alvi Sellwood	C. E.	Milwaukee	Clackamas
Richard William Skibbe	C. E.	The Dalles	Wasco
Mabel Rae Snow	D. S.	Boise, Idaho	
Edgar Adolph Sorenson	Elec.	Springfield	Lane
Roy H. Sprague	Mech.	Corvallis	Benton
Leland Hobart Spring	Agri.	Lebanon	Linn
Edison Blaine Stanley	Com.	Lone Rock	Gilliam
Frank Benjamin Steen	Agri.	Lebanon	Linn
William Thomas Stratton	Phar.	Hamilton, Montana	
Lester Eugene Stutz	Elec.	Redwood City, California	
Owen Hancock Test	C. E.	Ontario	Malheur
Ruth Thayer	D. S.	Portland	Multnomah
George Henry Thomas	Agri.	Dee	Hood River
Frank Wilson Thompson	Min.	Burns	Harney
James Jay Thompson	Agri.	Macleay	Marion
Carl Cliffton Titus	Mech.	Kingston	Linn
Stanley Everett Tripp	Min.	Corvallis	Benton
Leighton Jay True	Agri.	Corvallis	Benton
Laura Elsie Van Meter	D. S.	Hoskins	Benton
Chester Andrus Vincent	C. E.	St. Johns	Multnomah
John Oscar Vines	Elec.	Vale	Malheur
Edwin Wheeler Wallace	Mech.	Independence	Polk
Arthur M. Weatherford	Com.	Dayton, Washington	
Floyd James Williams	Elec.	Roselawn, California	
Lena May Wilson	D. S.	Albany	Linn
Sinclair Albert Wilson	For.	Linnton	Multnomah
Carl Wolff	Mech.	Portland	Multnomah
George S. Zimmerman	Agri.	Yamhill	Yamhill

JUNIORS.

Name.	Course.	Postoffice.	County.
Isabella Vivien Ackerman	D. S.	Salem	Marion
James Quincy Adams	Agri.	Sheboygan, Wisconsin	
Challis William Allen	Com.	Lostine	Wallowa
Chancie J. Allison	Elec.	Portland	Multnomah
Roy J. Anderson	Elec.	Tillamook	Tillamook

Name.	Course.	Postoffice.	County.
Charles Eric Armstrong	Mech.	Corvallis	Benton
Albert Asbahr	Agri.	Cornelius	Washington
Edward James Atckison	Min.	Portland	Multnomah
Hazel Emma Baker	D. S.	Corvallis	Benton
Mabel Mary Baker	D. S.	Corvallis	Benton
Harold Harrison Barbur	For.	Portland	Multnomah
James Linwood Batchelder	Agri.	Hillsboro	Washington
Walter Boone Beasley	Elec.	Hermiston	Umatilla
Leslie Beaty	Agri.	Ballston	Polk
Nora Emma Beebe	D. S.	Central Point	Jackson
Roy Borden	Elec.	Newport	Lincoln
Jennie Margarette Bossen	Com.	Langlois	Curry
Thomas James Brackett	Agri.	Greenland, N. H.	
Harvey Wilber Bradley	Agri.	Beaverton	Washington
Rolstyn Daniel Bridges	Com.	Cordova, Alaska	
Edith Stanley Brogden	D. S.	Hillsboro	Washington
Earl Chase Brooks	Mech.	Corvallis	Benton
Vernon Jordan Brown	Phar.	Corvallis	Benton
Merlon Taylor Calef	C. E.	Portland	Multnomah
Clyde Nathan Carey	Elec.	Springbrook	Yamhill
William Robert Carlson	C. E.	Bridal Veil	Multnomah
John Darwin Carnegie	Elec.	Albany	Linn
Roxana Cate	D. S.	Corvallis	Benton
Isaac Ray Chapman	Phar.	Fossil	Wheeler
Orrin Kerry Charles	Com.	Portland	Multnomah
Berthel Claude Copple	Agri.	Corvallis	Benton
Harold Leslie Davis	Mech.	Hoquiam, Washington	
Keren Lee Davis	D. S.	Portland	Multnomah
Lucile Allen Davis	D. S.	Portland	Multnomah
Robert Clyde Day	Elec.	La Grande	Union
Charles Despain	Elec.	Pendleton	Umatilla
Alexander William Dodge	Agri.	Pasadena, California	
Walter Wilbur duMoulin	Elec.	Corvallis	Benton
John H. Dunham	Agri.	San Francisco, California	
Clifford Dunn	Min.	Cloverdale	Tillamook
William Connell Dyer	C. E.	Salem	Marion
Clarence Herbert Eagy	Com.	Albany	Linn
Mary Lillian Earnest	D. S.	Denzer	Lincoln
Howard James Eberly	For.	North Yakima, Wash.	
Otto Herman Elmer	Agri.	Mulino	Clackamas
John Oscar Enberg	Min.	Baker City	Baker
Hortense Eppley	D. S.	Salem	Marion
Jackson Kenelem Fairchild	Elec.	Portland	Multnomah
Bradford Fowles	Elec.	Mountaindale, Wash.	
Charles August French	Elec.	Corvallis	Benton

Name.	Course.	Postoffice.	County.
Abner Jared Fuller	Elec.	Corvallis	Benton
Viola Gardner	Com.	Corvallis	Benton
Bessie Garrett	Phar.	Ashland	Jackson
Albert P. Gibson	Elec.	Ontario	Malheur
Herbert J. Gilkey	C. E.	Grants Pass	Josephine
Harold Gill	For.	Portland	Multnomah
Roy Fred Ginther	Phar.	Corvallis	Benton
Raymond Chase Gleason	Elec.	Sumpter	Baker
Elmer E. Goshorn, Jr.	C. E.	Lents	Multnomah
James William Graham	Mech.	Gardiner	Douglas
Kenneth B. Grim	C. E.	Hubbard	Marion
Frederick Benhart Gross	Mech.	Athena	Umatilla
James Harrison Haight	Elec.	Little Shasta, California	
Lorain Walter Haller	Elec.	Telocaset	Union
Orlando B. Hardy, Jr.	Agri.	Bend	Crook
George Lyle Harper	C. E.	Grants Pass	Josephine
Lee Marion Harris	Elec.	Vale	Malheur
Willamette W. Harris	Agri.	Oregon City	Clackamas
Charles Hartsock	Mech.	Albany	Linn
Elmo Yeaton Haskell	C. E.	Central Point	Jackson
Vera Etta Haskell	D. S.	Corvallis	Benton
William Dexter Haskell	Mech.	Corvallis	Benton
Bird Norman Hawley	Agri.	Star	Lane
Philo Benjamin Hawley	Agri.	Cottage Grove	Lane
Homer Harry Hayes	Com.	Joseph	Wallowa
William Melville Herren	Mech.	Portland	Multnomah
Carl Victor Hersey	C. E.	Portland	Multnomah
Leroy Vernon Hicks	Elec.	Ashland	Jackson
Claude Elgin Howard	Com.	Corvallis	Benton
George Clarence Howard	C. E.	Corvallis	Benton
Chester Carl Howe	Min.	Corvallis	Benton
Myra Evangeline Hukill	D. S.	Corvallis	Benton
Clarence Loyd Jamison	Min.	Fairbanks, Alaska	
Russell Samuel Jeffreys	Min.	Portland	Multnomah
Anders Marimus Jeppesen	Mech.	Bacona	Washington
Alfin Johnson	C. E.	Seaside	Clatsop
Alva W. Jones	Com.	Heppner	Morrow
Glenn C. Jones	Com.	Heppner	Morrow
Walter Keck	C. E.	Hammond	Clatsop
Lawrence Keene	Min.	Salem	Marion
Leona Kerr	D. S.	Corvallis	Benton
Angie Charlotte Kyle	Com.	Monroe	Benton
Albert F. J. Lafky	Agri.	Salem	Marion
Horace Richard Landfare	Min.	Portland	Multnomah
Ielleen Allanna Leech	D. S.	Grants Pass	Josephine

Name.	Course.	Postoffice.	County.
Edward R. Leibner	Com.	Albany	Linn
Erwin Betran Lemon	Com.	Grass Valley	Sherman
Harry Arthur Lindgren	Agri.	Melrose	Douglas
Raymond Stewart Looseley	Agri.	Ft. Klamath	Klamath
Fern Gladys Loughridge	Com.	Hedrick, Iowa	
Joseph L. McAllister	C. E.	Yamhill	Yamhill
Melville Thomas McAllister	C. E.	Yamhill	Yamhill
Margaret McCall	D. S.	Scio	Linn
William H. McDaniel	Elec.	Portland	Multnomah
Forrest William McGinnis	Agri.	Corvallis	Benton
Iva McGinnis	Com.	Corvallis	Benton
Howard Elmer McLean	Elec.	Wallowa	Wallowa
Lenora Makelim	D. S.	Portland	Multnomah
Claude Alvin Mattson	C. E.	Astoria	Clatsop
Cecil Elam Metcalf	Min.	Portland	Multnomah
Samuel Michael	Com.	Baker City	Baker
Watson Boone Miles	Com.	Lostine	Wallowa
Fred A. Miller	Mech.	Portland	Multnomah
Rawla Arnold Miller	Elec.	Athena	Umatilla
Zoe Velma Miller	Phar.	Amity	Yamhill
Harry Clay Montgomery	C. E.	Arthur, Missouri	
Otto N. Moore	Elec.	Portland	Multnomah
Bertha Morgan	D. S.	Ione	Morrow
Ira Monroe Morgan	Agri.	Ione	Morrow
Charles LeRoy Nelson	Mech.	Scappoose	Columbia
Ivar Emanuel Nelson	Elec.	Ione	Morrow
Marion Arthur Nickerson	C. E.	Oregon City	Clackamas
Adolph Nilsson	For.	Portland	Multnomah
Gertrude Frances Nolan	Com.	Corvallis	Benton
Arthur O'Connor	C. E.	Montague, California	
Earle Arney Olsen	Com.	Warrenton	Clatsop
Bernhard Olsen	Elec.	Milwaukee	Clackamas
Ruby Irene Olsen	D. S.	Corvallis	Benton
Wells Oviatt	Elec.	Corvallis	Benton
Ada Park	Com.	Corvallis	Benton
Lawrence William Park	Mech.	Corvallis	Benton
Otis Larrabee Patterson	C. E.	Canyon City	Grant
Louis Clifton Perry	C. E.	Portland	Multnomah
Henry John Pfandhoefer	Elec.	Falls City	Polk
Lige Edward Phillips	Min.	Salem	Marion
Myra Belva Pierce	Com.	Corvallis	Benton
Carrie Maude Pimm	D. S.	Philomath	Benton
Phillip Ray Poff	C. E.	St. Johns	Multnomah
Herman Lair Prather	Mech.	Buena Vista	Polk
Minnie Price	D. S.	Kings Valley	Benton

Name.	Course.	Postoffice.	County.
Clifford Wayne Raber	Agri.	Corvallis	Benton
Helen Raber	D. S.	Corvallis	Benton
Alvin Lester Raines	C. E.	Lacomb	Linn
William Fritz Raithel	For.	St. Barbara, California	
George Rieben	Agri.	Banks	Washington
Lillie Riggs	Com.	Vancouver, Washington	
LeRoy Comstock Rulifson	C. E.	Salem	Marion
Lawrence George Russell	C. E.	Corvallis	Benton
C. Howard Schartow	Agri.	Toledo, Ohio	
Ruth Winnifred Scovill	Phar.	Grants Pass	Josephine
Alice Gertrude Shepard	D. S.	Portland	Multnomah
Holly H. Siemens	Mech.	Klamath Falls	Klamath
Carl Herman Sigglin	C. E.	Portland	Multnomah
Earl Jackson Silva	Elec.	Rainer	Columbia
Neil Likens Simons	Min.	Portland	Multnomah
Maurice Edgar Smead	Com.	Heppner	Morrow
Chester Lyman Smith	Elec.	Springfield	Lane
Genevieve Smith	D. S.	Corvallis	Benton
Lester Charles Smith	C. E.	Grays River, Washington	
Mason Goodwin Smith	Min.	Burns	Harney
Philip Smith	Min.	Portland	Multnomah
Robert Lawrence Smith	Mech.	Portland	Multnomah
Ruth McNary Smith	D. S.	Marshfield	Coos
Ruby Irene Starr	D. S.	Corvallis	Benton
Thurman J. Starker	For.	Portland	Multnomah
Noble Dunshee Stearns	Mech.	Portland	Multnomah
Ralph K. St. Pierre	Agri.	Salem	Marion
Charles Ernest Stricklin	C. E.	Olex	Gilliam
Fred Jacob Stutz	C. E.	Redwood City, California	
John Wyatt Surry	Agri.	Lyons	Linn
Lawrence Edgar Swan	C. E.	Hubbard	Marion
Nellie Sykes	D. S.	Salem	Marion
William Everett Taylor	Mech.	Oregon City	Clackamas
Charles Claude Thompson	Agri.	Hood River	Hood River
William Jeptha Thornton	Phar.	Roseburg	Douglas
Genevieve Tillery	D. S.	Corvallis	Benton
Fred Venard Tooley	Agri.	Portland	Multnomah
Herman Chris Tschanz	Elec.	Eugene	Lane
Loy Monroe Turner	C. E.	Heppner	Morrow
Gustav Peter Wanstrom	Agri.	Fishhawk	Columbia
Ora Weaver	Com.	Myrtle Creek	Douglas
Lincoln Ward Wheeler	Agri.	San Diego, California	
Mabel Gertrude Williamson	D. S.	Wells	Benton
Mary Althea Wilson	D. S.	Gresham	Multnomah
Earl Withycombe	C. E.	Corvallis	Benton

Name.	Course.	Postoffice.	County.
Frank W. Wright	Elec.	Portland	Multnomah
Joseph Benjamin Yoder	Mech.	Hubbard	Marion
Dorris Shelby Young	Agri.	Sherwood	Clackamas

SOPHOMORES.

Name.	Course.	Postoffice.	County.
Ethel Miriam Allen	D. S.	Bend	Crook
Lawrence Fremont Allen	Phar.	Lostine	Wallowa
Carl Nathaniel Anderson	Min.	Portland	Multnomah
Esther Grayce Anderson	D. S.	Corvallis	Benton
Marguerite Andrews	Com.	Medford	Jackson
Wilbur DeWitt Andrews	Mech.	Oregon City	Clackamas
Gladys Bertha Angell	D. S.	Mooers, New York	
Hugh Barkeley Antrim	C. E.	Amity	Yamhill
Samuel Hubbell Arbuthnot	Agri.	Portland	Multnomah
William Anthony Armstrong	Mech.	Corvallis	Benton
Margaret Mary Asbahr	D. S.	Cornelius	Washington
Rae Atherton	D. S.	Dayton, Washington	
Almont Arlie Bailey	Com.	Portland	Multnomah
James Edwin Bannister	C. E.	Parkplace	Clackamas
John Wolverton Barcroft	Phar.	Newberg	Yamhill
Esme Marguerite Bassett	D. S.	Springfield	Lane
Alice Bateman	D. S.	Gales Creek	Washington
Roy Arthur Baynard	Phar.	Silverton	Marion
Harry M. Beck	Com.	Corvallis	Benton
John Harrison Belknap	Elec.	Corvallis	Benton
Clyde Clark Benson	Mech.	Portland	Multnomah
Elsie Mary Bevens	D. S.	Corvallis	Benton
Robert Godfrey Blomgren	C. E.	Weston	Umatilla
Sidney H. Boddinghouse	Agri.	Wilmette, Illinois	
James Charles Bonner	Agri.	Silverton	Marion
Sadie Bonner	D. S.	Silverton	Marion
Frank H. Boulan	Agri.	Portland	Multnomah
Walter L. Broomhall	Com.	Baker City	Baker
Fred Grant Brown	C. E.	Ft. Klamath	Klamath
Robert W. Brown	Com.	Drewsey	Harney
Saxon Berners Bruce	C. E.	Monmouth	Polk
Lizzie Buchanan	D. S.	Corvallis	Benton
John Townsend Burch	C. E.	Rickreall	Polk
Allan Burdick	Mech.	Portland	Multnomah
Malo Cady	D. S.	Corvallis	Benton
Glover Carroll	Agri.	Portland	Multnomah
Walter Guy Carson	C. E.	Irrigon	Morrow

Name.	Course.	Postoffice.	County.
Ray Winton Castle	C. E.	Irrigon	Morrow
James Marion Caughell	C. E.	Gold Beach	Curry
Chester William Chambers	Com.	Kings Valley	Benton
George Elmer Chapman	Com.	Fossil	Wheeler
Joe Chernis	C. E.	Portland	Multnomah
William Clark	Agri	Hood River	Hood River
Frank William Clyne	Agri.	Los Angeles, California	
Reid C. Cochran	Com.	Corvallis	Benton
John O. Conrad	Mech.	Newberg	Yamhill
Ernest Sylvester Cook	Agri.	Portland	Multnomah
Robert Arnold Cook	Agri.	Portland	Multnomah
Benjamin Harrison Cooper	Agri.	Corvallis	Benton
Ruth Lillian Corbett	D. S.	Corvallis	Benton
Ethel Louise Courtney	D. S.	Dayton, Washington	
Otto Arnold Dahl	Agri.	Silverton	Marion
Charles Vador Darling	Mech.	Portland	Multnomah
Bessie Davidson	D. S.	Corvallis	Benton
Charles Edgar Davis	Agri.	Grass Valley	Sherman
Leona Georgia Davis	D. S.	Grass Valley	Sherman
Wilbur Luther Davis	Phar.	Portland	Multnomah
Harold Karl Dean	Agri.	Baker City	Baker
Charles Robert Dear	Elec.	Oakland	Douglas
Ellis Samuel Dement	Agri.	Myrtle Point	Coos
Lester Thomas Dement	Agri.	Myrtle Point	Coos
Lila Grace Dobell	D. S.	Corvallis	Benton
Irene Fern Dodd	Phar.	Falls City	Polk
Luther Andy Duckworth	Min.	Sumpter	Baker
Lulu Eddy	Phar.	Roseburg	Douglas
Jesse Boyd Edington	C. E.	Athena	Umatilla
Caryl Edwards	D. S.	Monroe	Benton
Hazel Edwards	D. S.	Monroe	Benton
Bertha Margaret Eliason	Com.	Ashland	Jackson
Nellie Edel Elliott	D. S.	Damascus	Clackamas
Ruby Edith Elliott	D. S.	Gresham	Multnomah
Albert Frederick Eschricht	Min.	Portland	Multnomah
Fred George Evenden	Phar.	Warrenton	Clatsop
Jesse Ray Fleming	Agri.	Bakeoven	Wasoc
Mabel Gardner	D. S.	Corvallis	Benton
Page Eugene Gardner	Phar.	Cornelius	Washington
Vane G. Gibson	Agri.	Warmspring	Crook
Mahlon Bruce Gilbert	Elec.	Pilot Rock	Umatilla
Ernest L. Graham	Mech.	Portland	Multnomah
Jay P. Green	Agri.	Twin Falls, Idaho	
John Delbert Griffin	Agri.	Astoria	Clatsop
Robert Harlow	C. E.	Portland	Multnomah

Name.	Course.	Postoffice.	County.
Clara Levena Hartzog	D. S.	Lakeview	Lake
Katherine Hasenbalg	Com.	Corvallis	Benton
Charles D. Hatfield	Agri.	Melrose	Douglas
Grace Hawley	D. S.	Corvallis	Benton
Earl William Heckart	Mech.	Corvallis	Benton
Charles Clarence Heid	Agri.	Fairfield, Illinois	
George F. Hess	Elec.	Corvallis	Benton
Edgar Carl Hexter	Agri.	Portland	Multnomah
George Prentice Hicinbothom	Elec.	Oregon City	Clackamas
Deane Hollister	D. S.	Corvallis	Benton
Mervin Herbert Horton	Phar.	Burns	Harney
Charles Dorsey Houser	Phar.	Milwaukee	Clackamas
Charles Kennedy Hubbard	C. E.	Dundee	Yamhill
Mabel Florence Huff	D. S.	Corvallis	Benton
Gwendolen Hughes	D. S.	Ridgefield, Washington	
McKinley Huntington	Agri.	Yoncalla	Douglas
Oscar W. James	C. E.	Robinette	Baker
Jane Agnes Johnston	D. S.	Corvallis	Benton
Leo Edvin Johnson	Mech.	Carlton	Yamhill
Leota Jones	Com.	Corvallis	Benton
Jonas Oliver Jorstad	Agri.	Monroe	Benton
T. Khankhoje	Agri.	Wardha, India	
Minerva Kiger	Phar.	Corvallis	Benton
Olin McClellan Kiggins	Agri.	Portland	Multnomah
George Walter King	Min.	Portland	Multnomah
Earl Victor Knapp	Com.	Camas, Washington	
Lizzie Koeber	D. S.	Sherwood	Washington
Morris Koon	Agri.	Junction City	Lane
Orr Belknap Kyle	Phar.	Monroe	Benton
Chester De Bolt Lafferty	Com.	Corvallis	Benton
Mark Gustave Lafky	Agri.	Salem	Marion
Walter Winifred Larson	C. E.	Laurel	Washington
Alice Leedy	D. S.	Sherwood	Washington
Jay C. Leedy	Agri.	Sherwood	Washington
Clyde Clayton Levan	Min.	Portland	Multnomah
Harvey J. Lickel	For.	Spearfish, South Dakota	
Gertrude Estelle Lilly	Phar.	Corvallis	Benton
Alfred Gunn Lunn	Agri.	Camden, New Jersey	
George Herbert McAllister	Phar.	Yamhill	Yamhill
Ralph McCulloch	Agri.	Ashland	Jackson
O'Brian McFadden	Com.	Corvallis	Benton
LeRoy Roderick McKenzie	Elec.	Summerville	Union
Charles Grant McLaughlin	Agri.	Independence	Polk
Alfred Edwin Maneely	Elec.	New Plymouth, Idaho	
James B. Mann	Mech.	Portland	Multnomah

Name.	Course.	Postoffice.	County.
Carl Henry Manock	Phar.	Corvallis	Benton
Chris Elbert Mays	Phar.	Elgin	Union
Charles Edward Merritt	Elec.	Corvallis	Benton
Emily Marie Miller	D. S.	Corvallis	Benton
Roger Q. Mills	Agri.	Portland	Multnomah
John Rowland Mires	Min.	Ellensburg, Washington	
Willard Mitchell	D. S.	Newberg	Yamhill
Bertha Mable Moeck	Com.	Rainier	Columbia
George W. Morris	Elec.	Punxsutawney, Pa.	
Walter Edmund Morris	Com.	Punxsutawney, Pa.	
Earl Willis Moses	Agri.	Hood River	Hood River
Clarence S. Murray	Phar.	North Yakima, Wash.	
William Neland	Min.	Portland	Multnomah
Margaret Nicolai	D. S.	Portland	Multnomah
William Henry Nitschke	Elec.	The Dalles	Wasco
Herbert R. Olson	Elec.	Portland	Multnomah
Emmet N. Palmer	Agri.	Seattle, Washington	
Leslie L. Palmer	Agri.	Seattle, Washington	
Wade Brown Patterson	C. E.	Portland	Multnomah
Knight Pearcy	Agri.	Portland	Multnomah
Desire Joseph Perard	Phar.	Toppenish, Washington	
Thomas Theodore Pettit	Elec.	Corvallis	Benton
Alice Pimm	D. S.	Philomath	Benton
Fred Plympton	C. E.	Portland	Multnomah
Lester D. Porter	Com.	Corvallis	Benton
Lawrence Aubrey Prescott	Phar.	Seattle, Washington	
Harold Dudley Pugh	Min.	Portland	Multnomah
Lois Purdy	D. S.	Gaston	Washington
Clifford L. Reed	Phar.	Burns	Harney
Thomas Reierson	Mech.	Portland	Multnomah
Lester Clifford Rhodes	Min.	Corvallis	Benton
Ernest Graham Rice	Min.	Portland	Multnomah
Ruby Ailene Rice	D. S.	Corvallis	Benton
Robert Earl Riley	For.	Portland	Multnomah
Harrison Morton Roberts	Com.	Eugene	Lane
Stephen Arlie Roberts	Com.	Eugene	Lane
Wilda Salomon	D. S.	Salem	Marion
Louis Sawyer	Agri.	Albany	Linn
Arnold Dorn Schmidt	Elec.	Gresham	Multnomah
Robert Schulz	C. E.	Vancouver, Washington	
Eugene Herman Scovill	C. E.	Grants Pass	Josephine
Obil Shattuck	Agri.	Ft. Klamath	Klamath
Charles E. Sitton	Agri.	Carlton	Yamhill
Otto D. Sitton	Agri.	Carlton	Yamhill
Hiram Chester Smith	C. E.	Newberg	Yamhill

Name.	Course.	Postoffice.	County.
Hugh Smith	Elec.	Marshfield	Coos
Julius Spees	Elec.	Oregon City	Clackamas
Florence LaRue Starbird	D. S.	Portland	Multnomah
Reuben Leonard Stoneberg	Com.	Coburg	Lane
Arthur Vance Swarthout	Com.	Pinckney, Michigan	
Lloyd Alexander Taylor	Com.	Corvallis	Benton
Gilbert Thayer	Elec.	Rainier	Columbia
Charles Robertson Thomson	Elec.	Portland	Multnomah
Jennie Olympia Totten	D. S.	Corvallis	Benton
Harold Sale Turlay	Elec.	Astoria	Clatsop
George A. Urquhart	Elec.	Moro	Sherman
Albert Henry Utzinger	C. E.	Seaside	Clatsop
Nathan D. Vail	Agri.	Corvallis	Benton
William Roy Varner	Elec.	Lostine	Wallowa
Emma A. Vick	D. S.	Molalla	Clackamas
Alfred Edmund Volck	Agri.	Junction City	Lane
Otto George Voss	Mech.	Astoria	Clatsop
Paul Theodore Emil Wagner	Agri.	Portland	Multnomah
Harold Edward Wahlberg	Agri.	Lents	Multnomah
Clara Ellise Wallan	D. S.	Adams	Yamhill
Paul R. Watson	C. E.	Battle Ground, Wash.	
Elmer Francis Weatherford	Com.	Sumpter	Baker
Harold Whitby	Agri.	Corvallis	Benton
Harris Whitby	Agri.	Corvallis	Benton
Edwin Latimer Whitney	Agri.	Portland	Multnomah
Blanche Whittemore	Com.	Pendleton	Umatilla
Clyde Whittemore	D. S.	Pendleton	Umatilla
Louis Emil Wiegel	Min.	Indianapolis, Indiana	
Frank Earl Wilson	Elec.	Klamath Falls	Klamath
Raymond Ustick Williams	Agri.	Denver, Colorado	
Glenna Wilson	Com.	Mt. Hood	Hood River
Ora Wilson	D. S.	Dayton, Washington	
Roy Alfred Wilson	Phar.	McMinnville	Yamhill
*Nora Winniford	D. S.	Corvallis	Benton
Basil Witzig	Mech.	Parkplace	Clackamas
Maynard A. Young	Agri.	Burnt Ranch	Wheeler
Walter Young	Agri.	Milwaukee	Clackamas

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*Deceased.

FRESHMEN.

Name.	Course.	Postoffice.	County.
Frank R. Aikins	Mech.	Central Point	Jackson
Ethel Edna Allen	D. S.	Rickreall	Polk
Floyd Martin Allen	Phar.	Forest Grove	Washington

Name.	Course.	Postoffice.	County.
Roy Ware Alspaugh	Agri.	Barton	Clackamas
Cuba Oval Amick	Com.	New Pine Creek	Lake
Alston Conway Archbold, Jr.	Elec.	Hillsboro	Washington
John Walter Asplund	Elec.	Marshfield	Coos
Ramona Gladys Baum	D. S.	Corvallis	Benton
Maida Estella Beals	Phar.	Corvallis	Benton
Robert Wendell Bell	C. E.	Roseburg	Douglas
Ralph A. Blanchard	Agri.	Chicago, Illinois	
Florence Irene Booco	D. S.	Corvallis	Benton
Fred Breithaupt	Agri.	Clackamas	Clackamas
William Albert Brenner	Com.	Corvallis	Benton
Elizabeth Adaline Brissenden	Com.	Corvallis	Benton
Richard Bosworth Brissenden	Agri.	Corvallis	Benton
Clair Hollenbeck Bristow	Mech.	Portland	Multnomah
Charles Thomas Brooks	Min.	Twin Falls, Idaho	
William H. Brown	Agri.	Portville, New York	
Leone Buchanan	D. S.	Newberg	Yamhill
Bert Charles Burdick	Phar.	Portland	Multnomah
Edna Estelle Capps	D. S.	Denmark	Curry
Raymond Capps	Agri.	Denmark	Curry
Homer M. Carnes	Agri.	North Powder	Union
Roy Chambers	Elec.	Astoria	Clatsop
Earl Charles Chandler	Agri.	Sheridan	Yamhill
Irving Harold Chapman	Elec.	Payette, Idaho	
Jack Chandler Cook	Elec.	Portland	Multnomah
Harry Clifford Cooper	Phar.	Corvallis	Benton
John Edward Cooter	Agri.	Cottage Grove	Lane
Horace Givens Cox	Agri.	Corvallis	Benton
Guy Devere Cronemiller	Elec.	Lakeview	Lake
Rowley Cruit	C. E.	Wellen	Jackson
Hershel Eugene Currey, Jr.	Phar.	Baker City	Baker
Harry Dinges	Phar.	Junction City	Lane
Cecil Muriel Dodd	Agri.	Falls City	Polk
Percy Lucas Dodd	Elec.	Falls City	Polk
Lula Mae Donelson	Com.	Hillsboro	Washington
Edgar Bruce Duncan	Agri.	Nyssa	Malheur
Ralph Eli Duncan	Com.	Portland	Multnomah
William Henry Dunham	Agri.	Portland	Multnomah
Walter LeRoy Dutton	For.	Lakeview	Lake
Ruby Ethel Earhart	Com.	Independence	Polk
James C. Evenden	For.	Warrenton	Clatsop
Harold Day Farmer	C. E.	Portland	Multnomah
Blaine Ferguson	Com.	Hailey, Idaho	
James Earl Fleming	Min.	Wenatchee, Washington	
Charles Warren French	Mech.	Corvallis	Benton

Name.	Course.	Postoffice.	County.
Fred Marion Gay	Elec.	Corvallis	Benton
Helen Gretchen Gilbert	D. S.	Pilot Rock	Umatilla
Clyde Coalfeet Graham	Com.	Portland	Multnomah
Frank Earl Graham	Elec.	Houlton	Columbia
Charles Edwin Granlund	C. E.	Portland	Multnomah
Charles John Grosse	Agri.	Carlton	Yamhill
Joseph Homer Hallock	Elec.	Portland	Multnomah
Harold Evert Hamaker	Phar.	Bonanza	Klamath
Horace Earl Hamaker	Elec.	Bonanza	Klamath
Charles Hard	Mech.	Eugene	Lane
Chancy Clifford Harrington	Com.	Corvallis	Benton
Earl Sorsby Harris	Mech.	Corvallis	Benton
Edna M. Harris	Phar.	St. Helens	Columbia
William Beaty Harris	Agri.	Roseburg	Douglas
Frank Beaty Hatfield	Mech.	Central Point	Jackson
Vera Anne Hicks	D. S.	Ashland	Jackson
David Brooks Hogan	Agri.	Arleta	Multnomah
Mabel Agnes Houck	D. S.	Corvallis	Benton
Sadie Hubbard	D. S.	Newberg	Yamhill
Thomas Russell Hudson	C. E.	The Dalles	Wasco
Charlotte B. Huff	D. S.	Portland	Multnomah
Floyd Jerry Huntley	Agri.	Gold Beach	Curry
John Ernest Jackson	Phar.	Roseburg	Douglas
Maurice Ramsey Jayne	C. E.	Hood River	Hood River
Frederick C. Jernstedt	Mech.	Carlton	Yamhill
Ernest Valentine John	C. E.	St. Helens	Columbia
Ramona Kane	Phar.	Oakland, California	
Rudolph Allen Kaser	Agri.	Washougal, Washington	
Maurice True Keady	Mech.	Corvallis	Benton
Claris L. Kelley	C. E.	Portland	Multnomah
Glenn C. Kelly	Agri.	Portland	Multnomah
Lucy Adelia King	Com.	Corvallis	Benton
Frederick C. Lackaff	Mech.	Vancouver, Wash.	
Harry Bernette Lamley	Min.	Portland	Multnomah
Donald Whitman Larwood	C. E.	Mt. Hood	Hood River
Otto Karl Laue	Phar.	Portland	Multnomah
Lester C. Leavitt	For.	Klamath Falls	Klamath
Nelson E. Likins	Mech.	Portland	Multnomah
Emma Sophia Loe	D. S.	Silverton	Marion
Will Eagleson Lottman	Agri.	Portland	Multnomah
Ernest Pinn McDaniel	Elec.	Corvallis	Benton
Joseph Gordon McKay	Phar.	Portland	Multnomah
Robert T. McKee	Mech.	Lakeview	Lake
Robert Roderick McKenzie	Elec.	Lostine	Wallowa
Elmer M. McManus	Phar.	Burns	Harney

Name.	Course.	Postoffice.	County.
Fred Orville McMillan	Elec.	Salem	Marion
Benjamin Henry McNamee	C. E.	Portland	Multnomah
Donald Wayne MacClaire	Phar.	Portland	Multnomah
Lloyd Harry Magill	Phar.	Springfield	Lane
Chester Allen Mansfield	Agri.	Portland	Multnomah
Samuel Antonie Marrotte	Elec.	Baker City	Baker
Ina Gertrude Merritt	Com.	Corvallis	Benton
William A. Miles	Agri.	Lostine	Wallowa
Guy Ernest Mitchell	Min.	Joseph	Wallowa
Cass Edward Orval Montague	C. E.	Arlington	Gilliam
Charles Bruce Montague	Com.	Portland	Multnomah
Harold Hal Montgomery	Elec.	Corvallis	Benton
William Sherman Mowry	Com.	Moro	Sherman
Maude Isabella Nebo	D. S.	Aurora	Marion
George Furnam Neefus	Min.	Portland	Multnomah
Kakuji Okamoto	Agri.	Kumamoto, Japan	
Daniel W. Parker	Agri.	Bonanza	Klamath
Glenn Stuart Paxson	Min.	Newberg	Yamhill
Harold Morris Peery	Phar.	Springfield	Lane
Lorenzo Pilkington	Agri.	Astoria	Clatsop
James Andrew Pointer	Phar.	Lexington	Morrow
Edmond Clarke Potter	Elec.	Portland	Multnomah
John Adams Price	Com.	Seaside	Clatsop
Delia Purves	D. S.	Cornelius	Washington
J. Gordon Rasmussen	Com.	Marshfield	Coos
Epsteam Reed	Mech.	Astoria	Clatsop
Orville Greenleaf Reeves	Mech.	Pendleton	Umatilla
Charles Henry Reynolds	Phar.	La Grande	Union
Mildred Iona Reynolds	D. S.	Lakeview	Lake
S. Whiteley Richardson	Min.	Salem	Marion
Frank Lee Robinson	Agri.	Albany	Linn
Lynn Adam Robinson	Mech.	Albany	Linn
Henry Isaac Savage	Mech.	Seattle, Washington	
Bertha Schroeder	D. S.	Winant	Lincoln
Hans George Schroeder	Agri.	Salem	Marion
Clark E. Schultz	Agri.	Corvallis	Benton
Henry Robert Scott	Agri.	Nyssa	Malheur
Ivan Harrison Severance	Mech.	Hardman	Morrow
Guy A. Shadduck	For.	Corvallis	Benton
Homer Harrison Shake	Elec.	Salem	Marion
Rose Mae Sheridan	D. S.	Shedds	Linn
Willis Sherman Sibray	Com.	Portland	Multnomah
Francis Willard Smith	C. E.	Portland	Multnomah
James Quincy Smith	Phar.	Salem	Marion
William A. Smith	C. E.	San Francisco, California	

Name.	Course.	Postoffice.	County.
George Thomas Startzoff	Agri.	Sitka, Alaska	
Lewis Switzer	C. E.	Medford	Jackson
Alpheus Roscoe Tartar	Com.	Corvallis	Benton
Harry Mark Teel	C. E.	Echo	Umatilla
Royal Burleigh Thompson	Elec.	Corvallis	Benton
Lester D. Tycer	Elec.	Brownsville	Linn
John Lester Vail	Elec.	Corvallis	Benton
Grace E. Wallace	Com.	Independence	Polk
Fred Merle Weatherford	Com.	Olex	Gilliam
Elbert George Wells	Agri.	Halsey	Linn
Foster Pratt Wentz	C. E.	Portland	Multnomah
William Henry Whiteley	Elec.	St. Johns, Newfoundland	
John R. Williams	C. E.	Portland	Multnomah
Arthur James Wilson	Com.	Lebanon	Linn
James Harold Wilson	Agri.	Gresham	Multnomah
William George Wilson	Elec.	Union	Union
Everett Stanton Wisdom	Agri.	Corvallis	Benton
Carl Martin Wright	Elec.	Klamath Falls	Klamath

SECOND YEAR SECONDARY.

Name.	Course.	Postoffice.	County.
Homer Ferris Aker	Agri.	Corvallis	Benton
Fred Sebastine Allen	Mech.Arts	Grants Pass	Josephine
Allen K. Andrews	Mech.Arts	Medford	Jackson
Frank William Astmann, Jr.	Com.	Oregon City	Clackamas
Oscar Vincent Barkman	Agri.	Corvallis	Benton
Leslie Taylor Barnett	Mech.Arts	Wasco	Sherman
Mylo Bartu	Mech.Arts	Crabtree	Linn
George Burkhalter	Agri.	Hillsboro	Washington
Catherine Campbell	D. S.	Monmouth	Polk
William Edward Carty	Agri.	Ridgefield, Washington	
Kenneth Charles Colbert	Mech.Arts	Corvallis	Benton
Spencer Albert Covell	Mech.Arts	Corvallis	Benton
Lynn Foster Cronemiller	For.	Lakeview	Lake
Willis Robert Dallas	Agri.	Kist	Columbia
Chester Allan Dickey	Com.	Molalla	Clackamas
Lawrence Elmer Eagy	Com.	Albany	Linn
Delmar Eddy	Com.	Kings Valley	Benton
Connor Whealdon Edwards	Agri.	Monroe	Benton
Charles Ekstrom	Agri.	Astoria	Clatsop
Lee Earl Emery	For.	Corvallis	Benton
Denver Charles Evans	Mech.Arts	Eugene	Lane
Dale Stanley Ewart	Mech.Arts	Portland	Multnomah
Harvey Louis Fischer	Com.	Silverton	Marion

Name.	Course.	Postoffice.	County.
Leon Eglin Flett	Com.	Corvallis	Benton
Will Herman Foster	Mech.Arts	Jewell	Clatsop
Fred Ivan Gilbert	Mech.Arts	Grants Pass	Josephine
Mathias Ernest Guenther	Agri.	Gaston	Washington
Roy Ray Hamersley	Mech.Arts	Alsea	Benton
Maude Anna Hanson	Com.	Corvallis	Benton
George Albert Harris	Agri.	Roseburg	Douglas
Ruth Blanche Hawley	Com.	Corvallis	Benton
Jay Brooks Vogeley Haworth	Agri.	Hood River	Hood River
Joseph Alfred Henderson	Mech.Arts	Weston	Umatilla
Melvin Rutherford Hoff	Com.	New Era	Clackamas
Emil Edwin Horning	Mech.Arts	Corvallis	Benton
D. C. Howard	Agri.	Corvallis	Benton
Retta Huntington	D. S.	Yoncalla	Douglas
Claude Percy Hyde	Agri.	Corvallis	Benton
Carl Herbert Jacobson	Mech.Arts	North Powder	Union
Charles Percy Jaquith	Agri.	Laurel	Washington
Herbert Johnson	Mech.Arts	Astoria	Clatsop
George Henry Johnson	Agri.	Boise, Idaho	
Jack Gray Kamm	Agri.	Portland	Multnomah
Frank Kan	Agri.	Nour Tanz, China	
Moichi Kawashima	Agri.	Tokyo, Japan	
Alfred August Kern	Agri.	Washougal, Washington	
Oscar Edwin Kern	Mech.Arts	Washougal, Washington	
William Kinderman	Mech.Arts	Dayton	Yamhill
Mayme Elizabeth Lance	D. S.	Corvallis	Benton
Adolph Leonard Larson	Mech.Arts	Astoria	Clatsop
Howe Gin Lee	Com.	Portland	Multnomah
Alma Lydia Leibner	Com.	Albany	Linn
Theodore Eugene Lewton	Agri.	Portland	Multnomah
Robert Lilly	Com.	Corvallis	Benton
Edward Benny Loken	Mech.Arts	Harrisburg	Linn
Glenn McAllister	Mech.Arts	Shaw	Marion
Helen McFadden	D. S.	Corvallis	Benton
Julia Elenor McFadden	D. S.	Corvallis	Benton
Roy Oliver McGee	Agri.	CascadeLocks	Hood River
Donald McPherson	Com.	Baker City	Baker
John Henry Mack	Agri.	Portland	Multnomah
Roy G. Matthies	Mech.Arts	Cornelius	Washington
Bernhardt Edward MaxMeyer	Agri.	Lents	Multnomah
Richard MaxMeyer	Agri.	Lents	Multnomah
Della Marion Mays	D. S.	Hillsboro	Washington
John F. Meyer	Com.	Crabtree	Linn
Floyd H. Minear	Mech.Arts	Medford	Jackson
Raymond Alexander Mitchell	Agri.	Amity	Yamhill

Name.	Course.	Postoffice.	County.
Cecil Paul Moffitt	Com.	Junction City	Lane
Merle Moore	Mech.Arts	Corvallis	Benton
Sarah Morris	Com.	Rainier	Columbia
Wilbur Morris	Com.	Rainier	Columbia
George Frank Moznette	Agri.	Portland	Multnomah
Louisa Isabelle Musgrave	Com.	Corvallis	Benton
Henry Newell	Mech.Arts	Lakeview	Lake
James Emmet Norton	Com.	Airlie	Polk
Kate O'Connor	D. S.	Montague, California	
Oscar John Olson	For.	Marion	Marion
Lillian May Parcell	Com.	Portland	Multnomah
Henry Pfister	Mech.Arts	Portland	Multnomah
Harold Filmore Platt	Mech.Arts	Winnipeg, Canada	
Margurete May Pope	Com.	Portland	Multnomah
Alta Alice Purdy	D. S.	Gaston	Washington
Gustav A. Reese	Mech.Arts	Startup, Washington	
Louis Orson Rhodes	Agri.	Hood River	Hood River
John Dale Ridgeway	Mech.Arts	Buell	Polk
John Irving Roberts	Mech.Arts	Dover	Clackamas
J. Thornburn Ross, Jr.	For.	Astoria	Clatsop
Gordon Putman Ryals	Mech.Arts	Albany	Linn
Arthur Charles Sandstrom	Mech.Arts	Portland	Multnomah
Henry Sannes	Mech.Arts	Canby	Clackamas
William Roy Sawyers	Mech.Arts	Scottsburg	Douglas
Clarence George Schmidt	Mech.Arts	Portland	Multnomah
Verle Hoyt Schoff	Mech.Arts	Portland	Multnomah
Lee Byron Seavey	Agri.	Springfield	Lane
Lester Raymond Smith	Agri.	Corvallis	Benton
Walter E. Smith	Com.	Albany	Linn
Myrtle May Spaulding	Com.	Corvallis	Benton
G. W. Starr	Mech.Arts	Corvallis	Benton
Con Stillwell	Mech.Arts	Grass Valley	Sherman
Walter Curtis Stimson	Com.	Corvallis	Benton
George Thomas Strine	Mech.Arts	Portland	Multnomah
Cleve Sumerlin	Mech.Arts	Lee	Coos
Robert Burt Thorp	Mech.Arts	Seaside	Clatsop
Mabel Mary Turlay	Com.	Astoria	Clatsop
Harry Allen Van Gilder	Mech.Arts	Wasco	Wasco
George Welty Vernon	Mech.Arts	Astoria	Clatsop
Annis Wade	D. S.	Enterprise	Wallowa
Emma Fay Wade	D. S.	Enterprise	Wallowa
Frank George Waterhouse	For.	Gearhart	Clatsop
Henry Arthur White	Mech.Arts	Vancouver, Washington	
Charley Whiteside	Agri.	Corvallis	Benton
Fred Farley Wilcox	Agri.	Oregon City	Clackamas

Name.	Course.	Postoffice.	County.
Gerald Wilcox	Mech.Arts	Springwater	Clackamas
William Wilson	Com.	Astoria	Clatsop
Reginald G. Witte	For.	Milwaukee	Clackamas
Edwin Woodcock	Com.	Corvallis	Benton
Fred Byron Young	Mech.Arts	Burnt Ranch	Wheeler

FIRST YEAR SECONDARY.

Name.	Course.	Postoffice.	County.
Frank Peter Amort	Mech.Arts	Macleay	Marion
Claud Beard Andrews	Com.	Merrill	Klamath
Leona Crawford Atherton	D. S.	Dayton, Washington	
Marshal Alfred Baker	Mech.Arts	Portland	Multnomah
Harry Lester Barrett	Agri.	Portland	Multnomah
Theo G. Becker	Agri.	Laidlaw	Crook
Alfred Berglund	Agri.	Carlton	Clackamas
Edward William Blurock	Mech.Arts	Lewiston, California	
William Boentgen	Mech.Arts	Astoria	Clatsop
Edna Bowers	D. S.	Ashland	Jackson
Ethel Belle Brackett	Com.	Rufus	Sherman
George Ray Brenner	Com.	Corvallis	Benton
Henry J. Bruland	Agri.	Chicago, Illinois	
Maude Estella Buchanan	Com.	Corvallis	Benton
Frank Harold Burgoyne	Mech.Arts	Lexington	Morrow
Daisy Dean Butler	Com.	Dufur	Wasco
Carl J. Caldwell	Mech.Arts	Irrigon	Morrow
Ellen Canfield	D. S.	Hermiston	Umatilla
Lyman Harrison Case	Mech.Arts	Portland	Multnomah
Leland Casey	Agri.	Prineville	Crook
Adlia Casteel	Mech.Arts	Yaquina	Lincoln
Florence Mary Chadwick	D. S.	Warrenton	Clatsop
Jos. Addison Chamberlin	Mech.Arts	Portland	Multnomah
Nada Ree Clark	D. S.	Corvallis	Benton
Arnold Alvin Clausen	Mech.Arts	Boyd	Wasco
Cora Amelia Clausen	Com.	Boyd	Wasco
Philip B. Cohen	Agri.	Portland	Multnomah
Roy Max Cooley	Agri.	Chitco	Curry
Dorothy Coolidge	D. S.	Fraser, Colorado	
Jay Francis Coolidge	Mech.Arts	Fraser, Colorado	
Walter Judson Cox	Com.	Burton, Louisiana	
Lena May Darneille	Com.	Junction City	Lane
William Alexander Davidson	Agri.	Hood River	Hood River
Pauline Davis	D. S.	Albany	Linn
Frances Esther Dilley	Com.	Corvallis	Benton
Wm. Herschel Ellenburg	Mech.Arts	Drain	Douglas
Theodore Ellestad	Mech.Arts	Central Point	Jackson

Name.	Course.	Postoffice.	County.
Fred S. Else	Mech.Arts	Portland	Multnomah
Dorothy Evans	D. S.	Umpqua	Douglas
Albert Ray Fairbank	Mech.Arts	Lents	Multnomah
Harold Judd Fish	Mech.Arts	The Dalles	Wasco
Reuben James Forsyth	Mech.Arts	Lents	Multnomah
Fannie Mae Fortson	Com.	Sacramento, California	
Cliff Franklin Francisco	Com.	Corvallis	Benton
Guy Earl Gabriel	Mech.Arts	Corvallis	Benton
Lloyd Leroy Gabriel	Mech.Arts	Corvallis	Benton
Mildred Gabriel	D. S.	Corvallis	Benton
Pearl Gates	Com.	Corvallis	Benton
Ruth Graham	D. S.	Corvallis	Benton
Harold L. Greear	Com.	Corvallis	Benton
Leslie Lytton Haller	Agri.	Telocaset	Union
Wanda Haller	D. S.	Telocaset	Union
Victor Richard Hamaker	Agri.	Bonanza	Klamath
Lessie E. Hamersley	Com.	Alsea	Benton
Peter Hansen	Agri.	Salem	Marion
Alex J. Hayes	Com.	Corvallis	Benton
Chester Elwood Hazlitt	Agri.	Forest Grove	Washington
Maude Lucile Holgate	Com.	Corvallis	Benton
Harry Barrows Howard	Mech.Arts	Corvallis	Benton
Russell Marion Howard	Com.	Corvallis	Benton
Walter William Howard	Agri.	Corvallis	Benton
Walter Philip Hubbard	Agri.	Corvallis	Benton
Cora May Hubler	Com.	Corvallis	Benton
Beatrice Imrie	D. S.	Melrose	Douglas
Edwin August Jackson	Mech.Arts	Astoria	Clatsop
Joseph Dart Kaster	Mech.Arts	Warrendale	Multnomah
Marion Sidney Kelley	Mech.Arts	Portland	Multnomah
Charles Allen King	Mech.Arts	Ashland	Jackson
Kenneth William Kinney	Agri.	Astoria	Clatsop
Charles Chauncey Lamb	Agri.	Seneca Falls, New York	
Arthur Lloyd Lance	Agri.	Corvallis	Benton
Blanch Lillian Landrith	D. S.	Marshfield	Coos
Philip Vivian Landrith	Agri.	Marshfield	Coos
Edwin Frank Laurin	Com.	Astoria	Clatsop
Sadie Lay	D. S.	Molalla	Clackamas
Martin Lumijarvi	Agri.	Albert	Clatsop
Kathleen Lyster	D. S.	Scottsburg	Douglas
Frank S. McCready	Com.	Corvallis	Benton
Walter Dodge Merrick	Agri.	Medford	Jackson
Robert Meyer	Mech.Arts	Newport	Lincoln
Eve Mires	D. S.	Ellensburg, Washington	
Ethyl Edna Morgan	Com.	Corvallis	Benton

Name.	Course.	Postoffice.	County.
Ralph Lester Morgan	Mech.Arts	Corvallis	Benton
Oran King Morris	Mech.Arts	Corvallis	Benton
John William Mulloy	Mech.Arts	Laurel	Washington
Kenneth Nelson	Agri.	Eugene	Lane
Mont Oliver, Jr.	Agri.	Boise, Idaho	
Hiroshi Ono	Agri.	Gifu, Japan	
Francis Gerald Pelland	Mech.Arts	St. Paul	Marion
Helen Gertrude Perkins	D. S.	Salem	Marion
Helen Rose Plov	D. S.	Wells	Benton
Leslie Lamond Pope	Mech.Arts	Merrill	Klatmath
Harry L. Porter	Agri.	Medford	Jackson
Pearl May Post	D. S.	Blachly	Lane
Jim W. Richardson	Com.	McMinnville	Yamhill
Weston Mathison Rider	Agri.	Hudson, New York	
Lena Root	D. S.	Portland	Multnomah
Guy Orlando Sanborn	For.	Astoria	Clatsop
Joseph Shafter	Com.	Shasta, California	
Howard William Sheldon	Mech.Arts	Blodgett	Benton
George Harrison Smith	Mech.Arts	Williams	Josephine
Glen Wood Smith	Mech.Arts	LatourellFalls	Multnomah
Grayce Velma Smith	Com.	Corvallis	Benton
Winifred Elnathan Snider	Agri.	Hillsboro	Washington
Maude Olga Stenson	Com.	Corvallis	Benton
Francis Henry Stuart	Agri.	Springfield	Lane
Howard Stokes	Com.	Portland	Multnomah
Martin Huston Swart	Mech.Arts	Salem	Marion
John Lawrence Talbot	Mech.Arts	Seattle, Washington	
Jesse Thorp	Mech.Arts	Seaside	Clatsop
John Henry Thorp	Mech.Arts	Seaside	Clatsop
Claude Toner	Mech.Arts	Yaquina	Lincoln
Ivan Frost Totten	Agri.	Corvallis	Benton
Marion Turlay	Com.	Astoria	Clatsop
Ernest Elgin Vallen	Mech.Arts	Elwood	Clackamas
Grover Vernon	For.	Lakeview	Lake
Harry Samuel Wade	Agri.	Lostine	Wallowa
Leif Erickson Wahlberg	Agri.	Lents	Multnomah
Anna Wakerlig	D. S.	Bakeoven	Wasco
Rubert Stuart Warren	Agri.	Portland	Multnomah
Richard Ninian Webster	Agri.	Marshfield	Coos
Virgil Wendell Weckert	Mech.Arts	Sherwood	Washington
Edward Thomas Welch	Mech.Arts	Albany	Linn
Goldie Ruth Wells	D. S.	Halsey	Linn
Marie Vivien Wellsher	Com.	Corvallis	Benton
Esther White	D. S.	Goldendale, Washington	
Mitchell Wilkins	Agri.	Coburg	Lane
Isaac James Wilson	Agri.	Lewiston, California	

SPECIAL.

Name.	Course.	Postoffice.	County.
John Davison Bergen	Agri.	Corvallis	Benton
Oscar Eaton Blackington	Agri.	Rockland, Maine	
John David Breuer	Com.	Myrtle Rock	Coos
Russell Mott Brooks	Agri.	Silverton	Marion
George William Brune	Agri.	Portland	Multnomah
Fred H. Buchanan	Mech.	Newberg	Yamhill
Lester Robert Campbell	Agri.	Corvallis	Benton
Mattie Ellen Cleland	D. S.	Portland	Multnomah
Emma Crawford	Com.	Corvallis	Benton
Otheo Glenn Crawford	Com.	Heppner	Morrow
Fred Nels Cronholm	C. E.	North Yakima, Wash.	
Charles Davis	Com.	Farley, Iowa	
Robert Benjamin Denny	Agri.	Beaverton	Washington
Zilpha Virginia Galloway	Agri.	McMinnville	Yamhill
Tony Geneva Jennings	D. S.	Portland	Multnomah
Via Dolores Jennings	D. S.	Portland	Multnomah
Justin Everett Judy	Agri.	Medford	Jackson
Lillian May Lake	Com.	Corvallis	Benton
John Bradon Leech	Agri.	Corvallis	Benton
Perry Harlan McAlexander	Agri.	Mt. View, California	
Floyd Marquiss	Agri.	Corvallis	Benton
Edna Meryn Mott	Com.	Beaverton	Washington
Hester Caroline Phy	D. S.	Hot Lake	Union
Enid C. Robertson	Agri.	Turner	Marion
Nell Robinson	Com.	Beaverton	Washington
Harry August Schoth	Agri.	Oregon City	Clackamas
Frank Schulmerich	Agri.	Hillsboro	Washington
Lawrence M. Schwager	Agri.	Wilkes-Barre, Pa.	
David Anderson Scott	Elec.	Corvallis	Benton
Inez Margaret Taylor	D. S.	Albany	Linn
Kirk Jacob Taylor	Agri.	Corvallis	Benton
Ethel Jane Watters	D. S.	Corvallis	Benton
Eulah Lee Uright	D. S.	Albany	Linn

OPTIONAL.

Name.	Postoffice.	County.
Carl Amato	Mayger	Columbia
Florence Bowden	Corvallis	Benton
Gertrude Luella Davidson	Corvallis	Benton
Georgietta Hansell	Adams	Umatilla
Blanche Jeffreys	Portland	Multnomah

Name.	Postoffice.	County.
Fay Kitchin	Roseburg	Douglas
Maybelle Lenette Nelson	Scappoose	Columbia
*Stella Macklin Newman	Baraboo, Wisconsin	
Mabel Nettie Powers	Bradford, Illinois	
Jessie Audra Rust	Portland	Multnomah
Frances Eliza Simpson	Elk City	Lincoln
Edith Sproat	Hood River	Hood River

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*Deceased.

MUSIC.

Name.	Postoffice.	County.
Winnifred Aldrich	Corvallis	Benton
Mary Julia May Allen	Philomath	Benton
Kathleen Amy Armstrong	Corvallis	Benton
Harry Benjamin Auld	Corvallis	Benton
Irene Isabelle Bancroft	Hood River	Hood River
Evelyn Alice Barkman	Ridgefield, Washington	
Mrs. Olive Davis Bassett	Corvallis	Benton
Gertrude Elizabeth Bernard	Portland	Multnomah
Janet Ann Blackledge	Corvallis	Benton
Cecil Marie Brogden	Hillsboro	Washington
Walter S. Brown	Corvallis	Benton
Zeta Eugene Bryan	Corvallis	Benton
Alice Marie Cathey	Corvallis	Benton
Evelyn Frances Cathey	Corvallis	Benton
Lucile Chambers	Portland	Multnomah
Nellie M. Dann	Philomath	Benton
Nina Douglas	Corvallis	Benton
Iva Pearl Elston	Bluffton, Indiana	
Edith Emery	Ft. Klamath	Klamath
Hazel Emery	Ft. Klamath	Klamath
Mrs. James Evars	Philomath	Benton
Ariel Miriam Ewing	Brooklyn, New York	
Fred Conrad Eyman	Aurora	Clackamas
Grace Bartlett Feagles	Seattle, Washington	
Mrs. G. W. Fisher	Philomath	Benton
Edna May Freyler	Kansas City, Missouri	
Ethylwyn Glenva Gray	Corvallis	Benton
Greta India Gray	Corvallis	Benton
Zona Adda Haight	Albany	Linn
Blanche Ruth Hammel	Albany	Linn
William Arthur G. Hanford	Corvallis	Benton
Eleanor Christine Hardman	Denver, Colorado	
Florence Rozelle Hardman	Denver, Colorado	

Name.	Postoffice.	County.
Guy H. Heater	Newberg	Yamhill
Clarence William Johnson	Corvallis	Benton
Cleo Lorena Johnson	Corvallis	Benton
Esther Johnson	Coquille	Coos
Lillian Johnson	Corvallis	Benton
Queen Inez Johnson	Corvallis	Benton
Jean Marian Kent	Corvallis	Benton
Lynette Kerr	Corvallis	Benton
Georgia Kessi	Hood River	Hood River
Marie Alice McGinnis	Corvallis	Benton
Mrs. Etta Carter Mackenzie	Corvallis	Benton
Max Richard Miller	Corvallis	Benton
May Mitchell	Corvallis	Benton
Esmer Myrtle Mixter	Albany	Linn
Lada Flo Patterson	Corvallis	Benton
Helen Loretta Pelland	St. Paul	Marion
Mrs. E. F. Pernot	Corvallis	Benton
Mrs. Lenore Peterson	Corvallis	Benton
Mrs. Joseph Henry Pinkerton	Corvallis	Benton
Blanche Post	Shedds	Linn
Lois Lucinda Pratt	Corvallis	Benton
Glenna Dewey Record	Baker City	Baker
Vena Rickard	Corvallis	Benton
Elma Ola Rogers	Corvallis	Benton
Vida Almira Rogers	Tillamook	Tillamook
Juanita Rosendorf	Corvallis	Benton
Henry Arthur Schmidt	Milwaukee, Wisconsin	
Martha Helen Shea	Los Angeles, California	
Lawrence Skipton	Corvallis	Benton
Emma Weaver Strine	Portland	Multnomah
May Lyden Strine	Portland	Multnomah
Elnora Margaret Sudtell	Halsey	Linn
Lena Belle Tartar	Corvallis	Benton
Maude Josephine Turlay	Astoria	Clatsop
Flora Macdonald Whiteley	St. Johns, Newfoundland	
Mrs. Reuben Ernest Wills	Lebanon	Linn
Lottie Wilson	Mt. Hood	Hood River

SUMMER SCHOOL.

Name.	Course.	Postoffice.	County.
Winnifred Aldrich	Music	Corvallis	Benton
Grace Anderson	Optional	Corvallis	Benton
Edward B. Beaty	Optional	Corvallis	Benton
Gertrude Bernard	Music	Portland	Multnomah
Florence Irene Booco	D. S.	Corvallis	Benton

Name.	Course.	Postoffice.	County.
Mrs. J. C. Clark	Music	Portland	Multnomah
Mrs. W. G. Fisher	Music	Philomath	Benton
Edna May Freyler	Music	Kansas City, Missouri	
Juliet Sara Fullerton	Music	Corvallis	Benton
Frances Violet Gellatly	Music	Philomath	Benton
Mrs. Frances Goldson	Optional	Corvallis	Benton
Maud Mabel Harper	Music	Corvallis	Benton
Josephine Hinnell	D. S.	Salem	Marion
Mabel Huff	Optional	Corvallis	Benton
Jane Agnes Johnston	D. S.	Corvallis	Benton
Leona Kerr	Music	Corvallis	Benton
Lynette Kerr	Music	Corvallis	Benton
Stella Mayfield	D. S.	Elgin	Union
Mrs. W. Otten	Music	Calvin, North Dakota	
Irma Solle	D. S.	Umpqua	Douglas
Emma Alnna Vick	Optional	Molalla	Clackamas
Evelyn Walver	Optional	Corvallis	Benton

WINTER COURSES.

HORTICULTURE.

Name.	Postoffice.	County.
Mary Harris Allen	Mt. Hood	Hood River
Bruce W. Ariss	Portland	Multnomah
Philip Drury Atwater	Mt. Hood	Hood River
Rea Edwin Babson	Mt. Hood	Hood River
A. F. Beardsley	Salem	Marion
Kenneth W. Beebe	Central Point	Jackson
William Boegli	Madras	Crook
Paul Boss	Milwaukee	Clackamas
Chester E. Briedwell	Amity	Yamhill
Alex B. Brooks	Cherryville	Clackamas
Frank Patterson Brooke	Portland	Multnomah
Albert J. Brunquist	Hood River	Hood River
John J. Byl	Salem	Marion
S. A. Chappell	Elgin	Union
E. T. Chase	Portland	Multnomah
Harold D. Davis	Hoquiam, Washington	
Arthur Vincent Dunn	Grants Pass	Josephine
Reginald John Earl	Medford	Jackson
Newton E. Foster	Monmouth	Polk
F. W. Franz	Sutherlin	Douglas
David Gellatly	Gellatly, British Columbia	
John H. Goldman	Corvallis	Benton
William Allen Graham	Falls City	Polk
Christopher A. Greene	Providence, Rhode Island	

Name.	Postoffice.	County.
Paul Grossgebauer	Paterson, New Jersey	
Pliny Hamilton Hardy	New Orleans, Louisiana	
Tom Herd, Jr.	Newberg	Yamhill
Fred McAlister Huffman	La Grande	Union
Jefferson Davis Howell	Corvallis	Benton
William A. Hurd	Philomath	Benton
C. A. Johnson	Lexington	Morrow
Edward M. Johnson	Eugene	Lane
R. P. Keefer	Salem	Marion
Harold Kerns	Eugene	Lane
J. A. Kerr	Corvallis	Benton
Olin M. Kiggins	Portland	Multnomah
Charles Koehler	The Dalles	Wasco
G. A. Lawson	Shedds	Linn
J. Roscoe Lee	Baker City	Baker
B. Leis	Beaverton	Washington
W. Everett Lewis	Syracuse, New York	
Carl Lind	Corvallis	Benton
Harold M. Magnusen	Mist	Columbia
Edward Lee McClain	Hood River	Hood River
Burke McFadden	Corvallis	Benton
Charles Grant McLaughlin	Corvallis	Benton
William Alexander Melville	Hood River	Hood River
Zimri Mills	Springbrook	Yamhill
Kenneth C. Miller	Sheridan	Yamhill
August Muller	Eugene	Lane
Mearl J. Minear	Medford	Jackson
William F. Mueller	Mulino	Clackamas
Walter Norton	Airlie	Polk
William Alexander Orr	Corvallis	Benton
Culver Kenyon Osgood	Hood River	Hood River
William Glenn Patterson	The Dalles	Wasco
Albert William Peters	Hood River	Hood River
George R. Platt	Mt. Hood	Hood River
Thomas A. Roberts	Albany	Linn
Homer A. Rogers	Mt. Hood	Hood River
Louis Sawyer	Albany	Linn
Joseph Schafter	Shasta, California	
Clinton C. Scott	Phoenix	Jackson
Louis Mollyneaux Scott	Winona Lake, Indiana	
W. G. Sherman	Milwaukee, Wisconsin	
Thomas Mercer Simister	Portland	Multnomah
Howard S. Stephens	Amity	Yamhill
Martyn Kirkpatrick St. Pierre	Salem	Marion
W. D. VanLiew	Corvallis	Benton

Name.	Postoffice.	County.
Chester C. Walton	Mt. Hood	Hood River
Henry K. Weber	Salt Lake City, Utah	
C. A. Woods	Corvallis	Benton

AGRONOMY.

Name.	Postoffice.	County.
Phil Emit Edwards	Dell	Malheur
Fred Ewing	Portland	Multnomah
Charles Ekstrom	Astoria	Clatsop
John J. Fosmark	Hubbard	Clacakamas
Donald Hart	DuBois, Pennsylvania	
Aaron S. Johnson	La Grande	Union
Alfred August Kern	Washougal, Washington	
H. Steinarson Kravik	Marietta, Minnesota	
Frederic B. Noyes	Oakland, California	
James Howat Meikle	Olequa, Washington	
Carol Dudley Miller	Eugene	Lane
A. R. Needham	Corvallis	Benton
John Oppertshauser	Corvallis	Benton
Lloyd R. Patterson	Eugene	Lane
Otto Spillman	Boring	Clackamas
Charles Fairfax Thayer	Scio	Linn
Charles Arthur Wunderlick	Cornelius	Washington

ANIMAL HUSBANDRY.

Name.	Postoffice.	County.
T. D. Aker	Corvallis	Benton
Albert F. Bassford	Corvallis	Benton
Charles M. Bulkey	Portland	Multnomah
Bert P. Cator	Corvallis	Benton
Jacob Stephens Cherry	Pendleton	Umatilla
Frank Clark	Elkton	Douglas
John Ellis	Fort Klamath	Klamath
Frank L. French	Corvallis	Benton
Robert Holmes Gellatly	Philomath	Benton
R. M. Johnston	Corvallis	Benton
Raymond Mark	Sheridan	Yamhill
F. P. Schreiber	Portland	Multnomah
Lawrence E. Simmons	Silverton	Marion
Alfred Lester Stevenson	Corvallis	Benton
R. M. Taylor	Corvallis	Benton
Judson Vincent	Corvallis	Benton
John William Wells	Imbler	Union
Harry A. West	Oswego	Clackamas

DAIRY HUSBANDRY.

Name.	Postoffice.	County.
Charles Barkman	Corvallis	Benton
Alfred L. Bates	Albany	Linn
Herbert Bentley	Buttler	Polk
Albert B. Chandler	Sheridan	Yamhill
Ollie Edgar Crader	Oregon City	Clackamas
Oval E. Crowe	Lorane	Lane
Peter Ebson	Astoria	Clatsop
Edwin William Hahn	Jefferson	Marion
Robert Harold Harper	Corvallis	Benton
Raymond J. Howell	Holbrook	Multnomah
J. E. Hiatt	Oregon City	Clackamas
Ralph Adrian Keiser	Corvallis	Benton
Harry Keltery	Grays River, Washington	
Behari Lal	Lucknow, India	
Herbert B. McLane	Lyons	Linn
Earl Russell	Shelburn	Linn
Fred Romtvedt	Toledo	Lincoln
William Kendall Scovell	Nehalem	Tillamook
Robert Smith	Airlie	Polk
Percy S. Williams	Placer	Josephine
Isaac J. Wilson	Lewiston, California	

MECHANIC ARTS.

Name.	Postoffice.	County.
Martin Clausen	Coquille	Coos
J. F. Coolidge	Fraser, Colorado	
Daniel Hedlund	Fishhawk	Columbia
Nathaniel Thomas Henderson	Sheridan	Yamhill
Herman E. Kamholz	Centerville, Washington	
Leo L. Laythe	Burns	Harney
Harvey J. Lickel	Spearfish, South Dakota	
Aslak Lofthus	Toledo	Lincoln
Harry J. Meiater	Portland	Multnomah
George Henry Shelton	Coquille	Coos
John Lawrence Talbot	Seattle, Washington	
Ira E. Wilson	Centerville, Washington	

DOMESTIC SCIENCE AND ART.

Name.	Postoffice.	County.
Lillian Bogert	Monmouth	Polk
Bertha Bohannon	Corvallis	Benton
Martha Boss	Milwaukee	Clackamas
Dorothy Coolidge	Fraser, Colorado	

Name.	Postoffice.	County.
Mrs. Agnes Cronholm	Corvallis	Benton
Mrs. J. H. Davenport	Salem	Marion
Frances E. Dilley	Corvallis	Benton
Grace E. Hall	Corvallis	Benton
Jennie Hockena	Alsea	Benton
Marie A. Hofer	Salem	Marion
Bertha Hooks	Corvallis	Benton
Alberta May Hubbard	Corvallis	Benton
Mrs. Hattie L. Hurd	Corvallis	Benton
Mrs. B. Kate Johnson	Eugene	Lane
Mrs. Maidie Kaupisch	Corvallis	Benton
Mrs. Myrtle Knopf	Corvallis	Benton
Bertha Loe	Silverton	Marion
Kathleen Lyster	Scottsburg	Douglas
Julia Lytle	Salem	Marion
Mrs. M. I. Minear	Medford	Jackson
Ruth Nickle	Corvallis	Benton
Margaret Kathrine Prahl	Hillsboro	Washington
Mabel Rickard	Corvallis	Benton
Mrs. Elizabeth Smith Rodgers	Mt. Hood	Hood River
Lena Root	Portland	Multnomah
Emma C. Schroten	Roseburg	Douglas
Mrs. Anabel Read Scott	Phoenix	Jackson
Mrs. Elsie G. True	Sherwood	Washington
Mrs. Kittie G. Turner	Corvallis	Benton
Nina S. Waale	Corvallis	Benton
Mrs. May Whiteside	Corvallis	Benton
Althea Wilkins	Coburg	Lane

GENERAL AGRICULTURE.

Name.	Postoffice.	County.
James Aitken	Roseburg	Douglas
T. D. Aker	Corvallis	Benton
Joseph H. Albert	Salem	Marion
Ernest R. Allen	Tangent	Linn
Mary H. Allen	Mt. Hood	Hood River
Roland Grover Allen	Tangent	Linn
John Allesina	Cleone	Multnomah
A. W. Armstrong	Corvallis	Benton
W. E. Baker	Albany	Linn
J. R. Barclay	Corvallis	Benton
Albert F. Bassford	Corvallis	Benton
G. A. Bayne	Corvallis, R. F. D.	Linn
Park B. Beatty	Halsey	Linn
Russell Beckett	Salem	Marion

Name.	Postoffice.	County.
Jerry Beebe	Eugene	Lane
Freeman D. Bevens	Corvallis	Benton
George W. Bevens	Corvallis	Benton
Charles Bland	Talent	Jackson
John R. Bonner	Corvallis	Benton
R. Roy Booth	Yoncalla	Douglas
Benton Bowers	Ashland	Jackson
Benton Bowers, Jr.	Ashland	Jackson
Clarence S. Bowne	Aumsville	Marion
Albert R. Brenner	Corvallis	Benton
Pearl E. Brenter	Ashland	Jackson
A. B. Brooke	Portland	Multnomah
L. L. Brooks	Corvallis	Benton
George H. Brown	New Era	Clackamas
Silas D. Brown	Lyons	Linn
Walter Brown	Corvallis	Benton
Charles Melon Bulkley	Portland	Multnomah
R. E. Burger	Corvallis	Benton
Robert L. Burkhart	Albany	Linn
Mrs. Robert L. Burkhart	Albany	Linn
J. W. Buster	Alsea	Benton
Owen Callaghan	Corvallis	Benton
Mrs. Owen Callaghan	Corvallis	Benton
Stephen J. Campbell	Freewater	Umatilla
Charles Cartwright	Corvallis	Benton
Claude C. Cate	Brownsville	Linn
Ralph Orin Caves	Corvallis	Benton
Charles Cleveland	Gresham	Multnomah
William W. Conder	Corvallis	Benton
E. B. Conklin	Ontario	Malheur
Charles Leonard Copple	Corvallis	Benton
James R. W. Craken	Portland	Multnomah
Andrew Crooks	Albany	Linn
W. G. Davis	Corvallis	Benton
Charles S. Dow	Astoria	Clatsop
R. J. Earl	Medford	Jackson
L. N. Edwards	Monroe	Benton
William H. Egan	Brooks	Marion
Fred R. Elliott	Dallas	Polk
W. M. Elliott	Dallas	Polk
John Ellis	Fort Klamath	Klamath
R. L. Ellis	Albany	Linn
Granville Everest	Newberg	Yamhill
Frederic Clark Ewing	Corvallis	Benton

Name.	Postoffice.	County.
A. L. Fortson	Corvallis	Benton
H. W. Fortson	Seattle, Washington	
Newton Elmer Foster	Monmouth	Polk
L. G. Freeman	Corvallis	Benton
Adolf Fromberg	Corvallis	Benton
Samuel Joe Galloway	Hillsboro	Washington
W. F. Gay	Corvallis, R. F. D.	Linn
John R. Gee	Nashville	Lincoln
David Gellatly	Gellatly, British Columbia	
Robert Holmes Gellatly	Philomath	Benton
William Andrew Gellatly	Corvallis	Benton
C. M. Giddings	Albany	Linn
James Irving Gilbert	Corvallis	Benton
John B. Goodman	Corvallis	Benton
Ben D. Graf	Portland	Multnomah
W. A. Graham	Falls City	Polk
C. A. Green	Providence, Rhode Island	
James Groshong	Corvallis	Benton
Frederick G. Grosse	Carlton	Yamhill
Paul Grossgebauer	Paterson, New Jersey	
P. H. Hardy	New Orleans, Louisana	
B. W. Harris	Corvallis	Benton
C. Hartley	Corvallis	Benton
J. W. Hayes	Corvallis	Benton
Edward D. Hendricks	Corvallis	Benton
Thomas Herd, Jr	Newberg	Yamhill
Fremont Hersey	Wren	Benton
Albert A. Hinrichs	Albany	Linn
Charles Holloway	Brownsville	Linn
Edward Holloway	Brownsville	Linn
George H. Howe	Corvallis	Benton
J. D. Howell	Corvallis	Benton
Raymond Jackson Howell	Holbrook	Multnomah
F. M. Huffman	La Grande	Union
George W. Humphrey	Corvallis	Benton
W. A. Hurd	Philomath	Benton
Oscar Glenn Iden	Corvallis	Benton
Samuel G. Irvin	Newport	Lincoln
Forest E. Jenks	Tangent	Linn
Jesse S. Jenks	Tangent	Linn
C. A. Johnson	Lexington	Morrow
A. David Johnston	Hood River	Hood River
Robert M. Johnston	Corvallis	Benton
James Lincoln Jones	Corvallis	Benton
Alfred August Kern	Washougal, Washington	

Name.	Postoffice.	County.
Joseph Adison Kerr	Corvallis	Benton
Louisa J. Kerr	Corvallis	Benton
Louis H. Kirchen	Oregon City	Clackamas
H. Steinarson Kravik	Silverton	Marion
Arthur Lloyd Lance	Corvallis	Benton
Joseph T. Lance	Corvallis	Benton
Ora L. Lance	Corvallis	Benton
Charles T. Larkins	Brownsville	Linn
G. A. Lawson	Shedds	Linn
Joseph Rowe Lee	Baker City	Baker
A. J. Lewis	Oregon City	Clackamas
H. A. Lewis	Portland	Multnomah
W. E. Lewis	Syracuse, New York	
Horace Locke	Corvallis	Benton
Otto M. Locke	Corvallis	Benton
W. J. Loomis	Corvallis	Benton
William Bernard Lottman	Rainier	Columbia
Frank Loughary	Monmouth	Polk
A. T. Luther	Albany	Linn
Wm. H. Lytle	Pendleton	Umatilla
H. M. Magnusen	Mist	Columbia
Cyrus R. A. McCormick	Lebanon	Linn
Lester McFarland	Tangent	Linn
Mayro McKinney	Turner	Marion
H. B. McLane	Lyons	Linn
W. A. Melville	Hood River	Hood River
Francis M. Meyer	Corvallis	Benton
August Miller	Eugene	Lane
K. C. Miller	Sheridan	Yamhill
Michael C. Miller	Albany	Linn
Aaron Mills	Denzer	Lincoln
J. G. Mitchell	Corvallis	Benton
John R. Montgomery	Corvallis	Benton
Edward N. Moseley	Albany	Linn
Peter A. Moses	Corvallis	Benton
W. E. Mueller	Mulino	Clackamas
Anton Muks	McMinnville	Yamhill
Ross H. Nelson	Independence	Polk
S. M. Nickle	Corvallis	Benton
Clyde E. Niles	Ashland	Jackson
Fred Noeller	Corvallis	Benton
F. B. Noyes	Oakland, California	
Fred Olsen	Corvallis	Benton
Oscar W. Olson	Shedds	Linn
W. A. Orr	Corvallis	Benton

Name.	Postoffice.	County.
Isaac J. Peffin	Chitwood	Lincoln
James F. Pfouts	Junction City	Lane
Walter M. Pierce	La Grande	Union
G. R. Platt	Mt. Hood	Hood River
Jefferson A. Pooler	Salem	Marion
Bird Rickard	Corvallis	Benton
Charles G. Roberts	Hood River	Hood River
H. A. Rogers	Mt. Hood	Hood River
F. L. Robinson	Corvallis	Benton
Charles G. Sandstone	Hillsdale	Multnomah
W. S. Sawyer	Corvallis	Benton
C. C. Scott	Phoenix	Jackson
Charles Schoel	Albany	Linn
William Schulmerick	Hillsboro	Washington
William Kendall Scovell	Nehalem	Tillamook
Joe Shafter	Shasta, California	
A. B. Slocum	Albany	Linn
T. M. Simister	Portland	Multnomah
Harrie Slocum	Albany	Linn
George B. Smith	Corvallis	Benton
George G. Smith	Ajax	Gilliam
Joseph C. Smith	Corvallis	Benton
Carl Sonnichsen	Yamhill	Yamhill
Claude Sprague	Corvallis	Benton
Anna M. Stansbery	Portland	Multnomah
J. E. Stansbery	Woodlawn	Multnomah
E. N. Starr	Corvallis	Benton
P. T. Starr	Corvallis	Benton
Frank O. Stenson	Corvallis	Benton
Jake A. Stevenson	Halsey	Linn
Henry M. Stone	Corvallis	Benton
F. L. Strait	Newberg	Yamhill
Julian Stratton	Salem	Marion
Oren Stratton	Brownsville	Linn
William R. Surry	Lyons	Linn
Daniel F. Talbot	Gresham	Multnomah
Robert M. Taylor	Osborne, Kansas	
Charles Fairfax Thayer	Scio	Linn
E. A. Thurston	Wells	Benton
James H. Thurston	Suver	Polk
P. S. Thurston	Suver	Polk
W. H. Vail	Corvallis	Benton
Arthur Vaughn	Lyons	Linn
Thomas Benton Vernon	Lakeview	Lake
V. A. Vidito	Corvallis	Benton

Name.	Postoffice.	County.
Charles Wade	Corvallis	Benton
William Wade	Scottsburg	Douglas
J. T. Warman	Corvallis	Benton
H. K. Webber	Salt Lake City, Utah	
Ferda Welb	Corvallis	Benton
H. A. West	Oswego	Washington
David Whaley	Corvallis	Benton
George Whaley	Corvallis	Benton
Robert N. White	Corvallis	Benton
Rutledge L. Whitehead	Corvallis	Benton
Fred O. Wilkinson	Corvallis	Benton
E. F. Wiles	Albany	Linn
William A. Williams	Gladstone	Clackamas
John Wills	Albany	Linn
C. E. Wilson	Sheridan	Yamhill
J. Oscar Wilson	Pendleton	Umatilla
Curtis B. Winn	Albany	Linn
A. J. Wolcate	Corvallis	Benton
E. Woodward	Corvallis	Benton
Charles Arthur Wunderlich	Cornelius	Washington
M. A. Wyatt	Corvallis	Benton
Joseph Yates	Corvallis	Benton
William Yoder	Philomath	Benton

POULTRY.

Name.	Postoffice.	County.
Avery Applewhite	Corvallis	Benton
S. B. Bane	Corvallis	Benton
B. E. Barclay	Tidewater	Lincoln
D. Ross Barclay	Junction City	Lane
S. E. Beal	Corvallis	Benton
Mrs. S. E. Beal	Corvallis	Benton
W. A. Beal	Corvallis	Benton
Mrs. W. A. Beal	Corvallis	Benton
Mrs. A. W. Benton	Corvallis	Benton
William Borden	Newport	Lincoln
Thomas Boulden	Corvallis	Benton
J. E. Buchanan	Corvallis	Benton
Mrs. R. E. Burger	Corvallis	Benton
V. M. Collins	Corvallis	Benton
A. M. Cook	Corvallis	Benton
Mrs. A. M. Cook	Corvallis	Benton
Mrs. Coople	Corvallis	Benton
M. A. Crail	Corvallis	Benton
G. W. Curtiss	Corvallis	Benton

Name.	Postoffice.	County.
Loren Cyrus	Corvallis	Benton
Mrs. L. C. Davidson	Redmond	Crook
J. W. Duncan	Albany	Linn
Emile Durrenberycer	Albany	Linn
William Ewing	Oswego	Clackamas
F. M. Fiechter	Corvallis	Benton
Claude N. Freeman	Corvallis	Benton
G. C. Garfield	Corvallis	Benton
W. H. E. Gibbon	Corvallis	Benton
Marcus E. Gragg	Corvallis	Benton
Mrs. R. K. Hanson	Corvallis	Benton
George W. Henkle	Corvallis	Benton
Lee Henkle	Corvallis	Benton
James M. Herron	Junction City	Lane
T. C. Hetcher	Corvallis	Benton
G. E. Hinton	Corvallis	Benton
Joseph H. Hite	Corvallis	Benton
J. F. Hurlburt	Corvallis	Benton
Mrs. Seth Hurlburt	Corvallis	Benton
O. B. Ingram	Monroe	Benton
Mrs. J. H. Jackson	Corvallis	Benton
Will J. Kent	Corvallis	Benton
Walter N. Locke	Corvallis	Benton
T. A. Logsdon	Corvallis	Benton
W. H. McBee	Corvallis	Benton
Robert R. McKinney	Holley	Linn
Frank M. Lyon	Corvallis	Benton
W. H. McMahan	Corvallis	Benton
L. F. Millhollen	Corvallis	Benton
C. D. Minton	Portland	Multnomah
Mrs. Jesse Porter	Corvallis	Benton
W. E. Pratt	Corvallis	Benton
E. E. Raber	Corvallis	Benton
L. T. Reynolds	Salem	Marion
R. M. Ryer	Corvallis	Benton
J. H. Robson	Corvallis	Benton
C. E. Robinson	Corvallis	Benton
George F. Rice	Corvallis	Benton
J. L. Rexford	Corvallis	Benton
M. B. Rexford	Corvallis	Benton
Andrew Sandwick	Corvallis	Benton
G. I. Sheldon	Corvallis	Benton
Eddie E. Smith	Corvallis	Benton
Frank L. Smith	Corvallis	Benton
Cecil Stephens	Philomath	Benton

Name.	Postoffice.	County.
Charles Stephens	Philomath	Benton
Mrs. George Taylor	Corvallis	Benton
Hugh Taylor	Corvallis	Benton
Roy Tillery	North Dakota	
Harry M. Vance	Corvallis	Benton
Elizabeth Wahlberg	Lents	Multnomah
Mrs. C. V. Webber	Salt Lake City, Utah	
T. H. Wellsher	Corvallis	Benton
A. A. Williamson	Wells	Benton
L. T. Wilson	Corvallis	Benton
Robert L. Wilson	Holley	Linn
D. L. Young	Los Angeles, California	

SPECIAL COURSE FOR WOMEN.

Name.	Postoffice.	County.
Essie R. Adams	Corvallis	Benton
Rose Adams	Corvallis	Benton
Mrs. Carrie F. Aitken	Corvallis	Benton
Sue L. Aker	Corvallis	Benton
Mrs. Joseph H. Albert	Salem	Marion
Mrs. E. R. Allen	Tangent	Linn
Mrs. Alice Hill-Applewhite	Corvallis	Benton
Mrs. Lou Armstrong	Corvallis	Benton
Mrs. Ida S. Baker	Corvallis	Benton
Anna L. Bane	Corvallis	Benton
Bessie Barton	Corvallis	Benton
Chloe Barton	Corvallis	Benton
Mrs. Meta Barton	Corvallis	Benton
Lorena Barzee	Corvallis	Benton
Olive Davis Bassett	Corvallis	Benton
Beulah Beeler	Corvallis	Benton
Mrs. G. M. Beeler	Corvallis	Benton
Mrs. E. A. Belknap	Corvallis	Benton
Mrs. J. A. Bexell	Corvallis	Benton
Mrs. May Bier	Corvallis	Benton
Hedwig S. Bleeg	Hillsdale	Multnomah
Mrs. J. R. Bonner	Corvallis	Benton
Martha Boss	Milwaukee	Clackamas
Mrs. William Bowden	St. John, New Brunswick, Can.	
Mrs. A. R. Brenner	Corvallis	Benton
Mrs. Retta O. Brissenden	Corvallis	Benton
Lena Brown	Corvallis	Benton
Mrs. Mary A. Brune	Seattle, Washington	
Mrs. Orla Buxton	Forest Grove	Washington

Name.	Postoffice.	County.
Mrs. J. J. Cady	Corvallis	Benton
Mrs. Ida B. Callahan	Corvallis	Benton
Mrs. B. A. Cathey	Corvallis	Benton
Mrs. W. T. Chambers	Corvallis	Benton
Mattie Ellen Cleland	Portland	Multnomah
Mrs. James Cochran	Corvallis	Benton
Cora Alice Coolidge	Corvallis	Benton
Helen V. Crawford	Lebanon	Linn
Mrs. J. W. Crawford	Corvallis	Benton
Mrs. I. W. Culbertson	Corvallis	Benton
Mrs. J. H. Davenport	Silverton	Marion
Mrs. W. H. Davis	Corvallis	Benton
Bertha B. Edwards	Monroe	Benton
Cecil Erwin	Corvallis	Benton
Ariel M. Ewing	Brooklyn, New York	
Mrs. Helen M. Ewing	Oswego	Clackamas
Mrs. Farra	Corvallis	Benton
Zilpha V. Galloway	McMinnville	Yamhill
Mrs. F. C. Yates	Corvallis	Benton
Mrs. W. F. Gay	Corvallis	Benton
Mrs. L. M. Goldson	Corvallis	Benton
Mrs. F. O. Gray	Corvallis	Benton
Isabell Gray	Philomath	Benton
Mrs. Clara Gribble	Corvallis	Benton
Mrs. Laura Hill-Griffin	Corvallis	Benton
Edna Groves	Corvallis	Benton
Lillie M. Groves	Corvallis	Benton
Grace E. Hall	Corvallis	Benton
Mrs. Lettie Hall	Corvallis	Benton
Carrie Hammer	Corvallis	Benton
Mrs. A. N. Harlan	Corvallis	Benton
Mrs. Ida Harris	Corvallis	Benton
Mrs. J. A. Harper	Corvallis	Benton
Mrs. William John Harper	Corvallis	Benton
Mrs. Hendricks	Corvallis	Benton
Mrs. Laura Herse	Corvallis	Benton
Mrs. Otto F. L. Herse	Corvallis	Benton
Marie A. Hofer	Salem	Marion
Bertha May Hooks	Corvallis	Benton
Isabelle Horner	Corvallis	Benton
Rena Horner	Corvallis	Benton
Alberta May Hubbard	Corvallis	Benton
Mrs. Harriet Hurd	Corvallis	Benton
Mrs. R. H. Huston	Corvallis	Benton
Mrs. G. R. Hyslop	Corvallis	Benton

Name.	Postoffice.	County.
Mrs. James L. Jones	Corvallis	Benton
Mrs. A. B. Kennedy	Corvallis	Benton
Mrs. Minnie Kerr	Corvallis	Benton
Vesta Kerr	Corvallis	Benton
Mrs. W. J. Kerr	Corvallis	Benton
Mrs. Emma T. Kline	Corvallis	Benton
Myrtle Knopf	Corvallis	Benton
Mrs. M. S. Lane	Corvallis	Benton
Mrs. Etta Lee	Corvallis	Benton
Mrs. Mary Lipton	Corvallis	Benton
Mrs. W. J. Loughridge	Corvallis	Benton
Mrs. F. M. Lyon	Corvallis	Benton
Pearl Lyon	Corvallis	Benton
Mrs. L. Merritt	Corvallis	Benton
Gertrude McBee	Corvallis	Benton
Mrs. Joan McLennan	Corvallis	Benton
Mrs. Dora Miller	Corvallis	Benton
Jesse C. Mills	Corvallis	Benton
Mrs. Rose Montgomery	Corvallis	Benton
Lottie West Moore	Corvallis	Benton
Mrs. E. A. Morgan	Corvallis	Benton
Mrs. Birdie Musgrave	Corvallis	Benton
Mrs. Molly Musgrave	Corvallis	Benton
Mrs. Kate E. Nolan	Corvallis	Benton
Mrs. Adaline Olsen	Corvallis	Benton
Minnie Oren	Corvallis	Benton
Mrs. H. M. Parks	Corvallis	Benton
Mrs. Pelland	Corvallis	Benton
Mrs. H. S. Pernot	Corvallis	Benton
Mrs. Bert Pilkington	Corvallis	Benton
Mrs. Porter	Corvallis	Benton
Mrs. Johnson Porter	Corvallis	Benton
Mrs. Hattie Price	Corvallis	Benton
Mrs. E. D. Ressler	Corvallis	Benton
Mrs. R. H. Richards	Corvallis	Benton
Lillie Riggs	Vancouver, Washington	
Elizabeth Smith Rogers	Mt. Hood	Hood River
Emily F. Rodgers	Portland	Multnomah
Mrs. Sawyer	Corvallis	Benton
Mrs. Anabel Read Scott	Phoenix	Jackson
Mrs. H. D. Scudder	Corvallis	Benton
Mrs. M. J. Skipton	Corvallis	Benton
Mrs. Eddie Smith	Corvallis	Benton
Mrs. Effie E. Smith	Corvallis	Benton
Mrs. George M. Smith	Corvallis	Benton

Name.	Postoffice.	County.
Jessie Smith	Albany	Linn
Mrs. J. R. Smith	Corvallis	Benton
Rae Snow	Boise, Idaho	
Mrs. R. M. Taylor	Osborne, Kansas	
Mrs. Sarah Taylor	Corvallis	Benton
Ruth Thayer	Portland	Multnomah
Mrs. J. T. Thurston	Suver	Polk
Helen Hyde Tobin	Syracuse, New York	
Mrs. Kittie G. Turner	Corvallis	Benton
Lizzie Vance	Corvallis	Benton
Mrs. Vincent	Corvallis	Benton
Mrs. M. S. Waddle	Corvallis	Benton
Mrs. Wm. Wade	Corvallis	Benton
Mrs. J. T. Warman	Corvallis	Benton
Mrs. Mary Harris Whitby	Corvallis	Benton
May Whiteside	Corvallis	Benton
Althea Wilkins	Coburg	Lane
Mrs. E. E. Wills	Corvallis	Benton
Glenna Wilson	Corvallis	Benton
Lena May Wilson	Albany	Linn
Lottie Wilson	Corvallis	Benton
Mrs. C. B. Winn	Albany	Linn
Mrs. M. D. Wisdom	Corvallis	Benton
Mrs. Emma Woodcock	Corvallis	Benton

SUMMARY.

Classified by Courses of Study—

Agriculture	637	
Forestry	22	
Engineering and Mechanic Arts	390	
Domestic Science and Art	338	
Commerce	150	
Pharmacy	57	
Optional	18	
Music	81	
		1,693
Counted twice		102
Total number of students		1,591

Classified by Residence—

Total from Oregon (all counties represented)		1,443	
Other states and territories			
Alaska	3		
California	23		
Colorado	5		
Idaho	10		
Illinois	5		
Indiana	3		
Iowa	2		
Louisiana	2		
Maine	1		
Minnesota	1		
Michigan	1		
Missouri	2		
Montana	2		
New Hampshire	1		
New Jersey	2		
New York	6		
Nevada	1		
North Dakota	2		
Ohio	1		
Pennsylvania	4		
Rhode Island	1		
South Dakota	1		
Utah	3		
Washington	49		
Wisconsin	4		
		135	
Foreign countries			
British Columbia	1		
Canada	2		
China	1		
India	4		
Japan	3		
Newfoundland	2		
		13	
			1,591
Total number of men		1,111	
Total number of women		480	
			1,591

Comparative Enrollment—

1888-1889	97
1889-1890	151
1890-1891	201
1891-1892	208
1892-1893	282
1893-1894	240
1894-1895	261
1895-1896	397
1896-1897	316
1897-1898	336
1898-1899	338
1899-1900	405
1900-1901	436
1901-1902	488
1902-1903	541
1903-1904	530
1904-1905	680
1905-1906	735
1906-1907	833
1907-1908	1,156
1908-1909	1,352
1909-1910	1,591

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1910/11

COLLEGE BULLETIN. ISSUED MONTHLY. SERIES 1, No. 56.

OREGON
AGRICULTURAL COLLEGE

CATALOGUE
FOR
1911-1912

[Entered at the Postoffice, Corvallis, Oregon, as second-class matter]

Notice

(Following points should be carefully observed)

1. Students expecting to enter the College should, on completion of the public school course, send for a "Certificate of Record", which should be filled out and returned to the Registrar as long befor registration day as possible.

2. Students should come to the College prepared to pay all registration fees on registration day, and be prepared to pay at least one month's board and room rent in advance.

3. All new students should, upon arrival at the College, report at once at the Registrar's Office, Room 8, Adminstration Building, for directions regarding registration.

General Information Notes

Board and Room

In the dormitories, see pages 54, 55

Women—As early as possible make application for rooms to Dean Anna Z. Crayne, Waldo Hall.

In private families, see page 56

When the student arrives at the College, the Y. M. C. A. and Y. W. C. A. will, upon request, furnish a list of desirable rooming and boarding houses in Corvallis, all of which are approved by the College authorities. Students desiring such a list should call for it at "Shepard Hall".

Registration Dates

See page 63

Entrance Requirements and Examinations

See pages 59, 61, 62, 63

Information Bureaus

1. Upon arrival at the College, for general information call at the Y. M. C. A, or Y. W. C. A. rooms in "Shepard Hall". Ask for a "Student's Hand Book", published by the Christian Associations.
2. Registrars Office gives all information regarding registration.

Address communications to
H. M. TENNANT,
Registrar, Oregon Agricultural College
Corvallis, Oregon

Oregon Agricultural College

FOR

1911-1912

With List of Students for 1910-1911

CORVALLIS, OREGON

[illegible]
OF THE
UNIVERSITY OF ILLINOIS

PUBLISHED BY THE COLLEGE
JUNE, 1911

CALENDAR

1911

JULY

S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
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30	31					

AUGUST

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SEPTEMBER

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24	25	26	27	28	29	30

OCTOBER

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22	23	24	25	26	27	28
29	30	31				

NOVEMBER

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DECEMBER

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31						

1912

JANUARY

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FEBRUARY

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MARCH

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APRIL

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MAY

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19	20	21	22	23	24	25
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JUNE

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23	24	25	26	27	28	29
30						

OF THE
UNIVERSITY OF ILLINOIS

COLLEGE CALENDAR 1911-1912

1911.

July 12, Wednesday—Annual meeting of Board of Regents.

September 22, 23, 25, Friday, Saturday, Monday—Registration.

September 22, 23, Friday, Saturday—Examinations for admission.

September 26, Tuesday—Recitations begin.

November 23, 24, 25, Thursday, Friday and Saturday—Thanksgiving recess.

December 20, Wednesday (noon)—Christmas recess begins.

1912.

January 3, Wednesday—Regular exercises resumed.

January 3, Wednesday—Winter short courses begin.

January 3, Wednesday—Semi-annual meeting of Board of Regents.

February 4-9, Monday to Friday (inclusive)—Farmers' Week.

February 9, Friday—First semester ends.

February 12, Monday—Second semester begins.

February 22, Thursday—Washington's birthday; legal holiday.

April 10, Wednesday—Meeting of Board of Regents.

May —, ——————————Military Inspection Day.

May 18, Saturday—Interscholastic Track and Field Meet.

May —, ——————————Senior excursion to Newport.

May 30, Thursday—Decoration Day; legal holiday.

June 9-11, Sunday to Tuesday—Commencement week.

June 18, Monday—Summer School begins.

BOARD OF REGENTS

OF THE

OREGON AGRICULTURAL COLLEGE

AND

Experiment Station

OFFICERS.

HON. J. K. WEATHERFORD, President	Albany
HON. E. E. WILSON, Secretary	Corvallis
HON. B. F. IRVINE, Treasurer	Portland

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HON. BEN W. OLCOTT, Secretary of State	Salem
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HON. CHARLES E. SPENCE, Master of State Grange	Canby

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		Term Expires.
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HON. WILLIAM W. COTTON	Portland,	1912
HON. WALTER M. PIERCE	La Grande,	1912
MRS. CLARA H. WALDO	Portland,	1915
HON. E. E. WILSON	Corvallis,	1915
HON. B. F. IRVINE	Portland,	1915
HON. J. T. APPERSON	Parkplace,	1918
HON. J. K. WEATHERFORD	Albany,	1918
HON. C. L. HAWLEY	McCoy,	1918

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OF THE

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B. F. Irvine, Chairman; W. M. Pierce, C. L. Hawley.

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OFFICERS OF ADMINISTRATION AND INSTRUCTION

(Arranged in groups in the order of seniority of appointment.)

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Dean of Women,
Preceptress of Women's Dormitory.

....
Dean of the School of Domestic Science and Art,
Professor of Domestic Science.

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(The members of the Administrative Council are also members of the College Council.)

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Professor of Poultry Husbandry.

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Professor of Mining Engineering.

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Professor of Music.

WILLIAM ARTHUR JENSEN,
Recorder of the Faculties,
Secretary to the President.

GEORGE WILCOX PEAVY, M. S.,
Professor of Forestry.

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*On leave of absence.

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Professor of Art.

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Professor of Physics.

RALPH DORN HETZEL, A. B., LL. B.,
Professor of Public Speaking.

HERBERT SPENCER JACKSON, A. B.,
Professor of Botany and Plant Pathology.

LOUIS BACH, M. A.,
Professor of Modern Languages.

CLARENCE A. DOBELL,
Manager Business Office.

IDA ANGELINE KIDDER, A. B., B. L. S.,
Librarian.

ERMINE L. POTTER, B. S.,
Professor of Animal Husbandry.

THEODORE DAY BECKWITH, M. S.,
Professor of Bacteriology.

MARION SYDDUM VAN LIEW,
Professor of Domestic Science.

WILLIAM ARTHUR HILLEBRAND, A. B.,
Professor of Electrical Engineering.

....
Commandant of Cadets,
Professor of Military Science and Tactics.

VICTOR RAY GARDNER, M. S.,
Associate Professor of Pomology.

MARK CLYDE PHILLIPS, B. M. E.,
Superintendent of Heat, Light, and Power,
Associate Professor of Mechanical Engineering.

IDA BURNETT CALLAHAN, B. S.,
Assistant Professor of English Language and Literature.

NICHOLAS TARTAR, B. S.,
Assistant Professor of Mathematics.

ELMER POLIC JACKSON, B. S.,
Superintendent of Carpentry Shop,
Assistant Professor of Technical Woodwork.

GEORGE ROBERT HYSLOP, B. Sc.,
Assistant Professor of Agronomy.

ERNEST FLAGG AYRES,
Assistant Professor of Civil Engineering.

MYRTIE CLARK VAN DEUSEN,
Assistant Professor of Domestic Science.

ARTHUR GEORGE BOUQUET, B. S.,
Assistant Professor of Vegetable Gardening.

SAMUEL HERMAN GRAF, M. S.,
Assistant Professor of Experimental Engineering.

JULES FERNANDO MOREL, M. D. C.,
Assistant Professor of Veterinary Science.

HAROLD MANLEY TENNANT,
Registrar.

....
Assistant Professor of Political Economy.

FACULTY.

(The members of the Administrative and College Councils are also members of the Faculty.)

HARRY L. BEARD, B. S.,
Director of Cadet Band,
Instructor in Mathematics.

LOREN BURTON BALDWIN, A. M.,
Instructor in English.

WILLIAM McCAULLY PORTER,
Instructor in Forging.

ARIEL MIRIAM EWING,
Instructor in Domestic Art.

HELEN HYDE TOBIN,
Instructor in Domestic Art.

CARL LAFAYETTE KNOPF, M. E.,
Instructor in Mechanical Engineering.

WINIFRED MAUDE WILLIAMS, B. Ph.,
Instructor in English and in Physical Culture for Women.

EDWARD BENJAMIN BEATY, B. S.,
Instructor in Mathematics.

EARL PAUL HARDING, B. S.,
Instructor in Chemistry.

GENEVIEVE BAUM-GASKINS,
Instructor in Voice.

OTTO GERALD SIMPSON, B. S.,
Instructor in Dairy Husbandry.

RENTON KIRKWOOD BRODIE, M. S.,
Instructor in Chemistry.

EDGAR RAYMOND SHEPARD, A. M.,
Instructor in Physics and Electrical Engineering.

EMMETT B. MOORE, B. S.,
Instructor in Stenography.

ROBERT HENRY RODGERS, B. S.,
Instructor in Patternmaking.

GERTRUDE EWING McELFRESH, A. B.,
Instructor in English.

MYRTLE ELIZABETH KNEPPER, B. S.,
Assistant Librarian.

FLETCHER AMOS GOULD, B. S.,
Instructor in Civil Engineering.

MILO REASON DAUGHTERS, A. M.,
Instructor in Organic Chemistry.

WILBUR LOUIS POWERS, M. S.,
Instructor in Agronomy.

EDWARD CLEVELAND CALLAWAY, M. S.,
Instructor in Pharmacy.

ALICE LEORA EDWARDS, B. S.,
Instructor in Zoology and Entomology.

HELEN MARGARET GILKEY, M. S.,*
Instructor in Botany.

JAMES GEORGE ARBUTHNOT, B. S.,
Instructor in Physical Education.

MAY BABBITT-RESSLER,
Instructor in Piano.

FLORENCE BOWDEN,
Instructor in Latin and Music.

GEORGE ROY SAMSON, B. S., A. B.,
Instructor in Animal Husbandry.

EDITH CARTER KUNEY, A. B.,
Instructor in Modern Languages.

WILLIAM EVANS LAWRENCE, B. S.,
Instructor in Botany.

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*On leave of absence.

CLIFTON LEROY FLINT, B. S.,
Instructor in Landscape Gardening.

LAWRENCE F. WOOSTER, B. S.,
Instructor in Electrical Engineering.

FREDERICK WILLIAM GREVE, Jr., B. S., M. E.,
Instructor in Mechanical Engineering.

GEORGE FRANCIS SYKES, M. A.,
Instructor in Zoology and Entomology.

GRACE CAMPBELL, B. S.,
Instructor in Mathematics.

SAMUEL MICHAEL PATRICK DOLAN, C. E.,
Instructor in Civil Engineering.

STANTON GRIFFIS, A. B.,
Instructor in Public Speaking.

PAUL JAY BATKIN, A. B.,
Instructor in Public Speaking.

RAY HERBERT DOBELL, A. B.,
Instructor in Art .

FRANCES HUSTON, B. S.,
Instructor in Physical Culture for Women.

ARTHUR MATHIAS SWARTLEY, B. S., M. E.,
Instructor in Mining Engineering.

LUCY M. LEWIS, A. B., B. L. S.,
Library Cataloguer.

BURTON LEIGH CUNNINGHAM, B. S.,
Instructor in Mining Engineering.

ALFRED GUNN LUNN,
Instructor in Poultry Husbandry.

JAMES KOEBER, B. S.,
Instructor in Agronomy.

FRED EDGERTON EWART, B. S.,
Instructor in Physics and Electrical Engineering.

JOHN MONTGOMERY SPEIDEL, B. S.,
Instructor in Horticulture.

FRED VERNON TOOLEY, B. S.,
Orchard Foreman.
Instructor in Horticulture.

AMBROSE E. RIDENOUR, B. S.,
Instructor in Foundry Practice.

....
Instructor in Bacteriology.

....
Instructor in Botany.

....
Instructor in Plumbing and Steam Fitting.

....
Instructor in Woodwork.

....
Instructor in Forestry.

IDA ROBINSON-MOORE,
Assistant in Stenography.

FRED EUGENE PERNOT, B. S.,*
Assistant in Electrical Engineering.

FLOYD ROWLAND, B. S.,
Assistant in Chemistry.

ESTHER VESTAL LEECH, B. S.,
Assistant to Preceptress of Womens' Dormitory
Assistant in Domestic Science and Art.

BERTHA HERSE, B. S.,
Assistant in Library.

ERWIN BETRAN LEMON, B. S.,
Assistant in Commerce.

RUTH McNARY SMITH, B. S.,
Assistant in Domestic Science and Art.

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*On leave of absence.

OTHER OFFICERS.

ALICE LINDSEY WEBB,
Editor Press Bulletins.

ANNIE PETTINGELL,
Housekeeper Waldo Hall.

GEORGE B. KEADY,
Foreman Printing Plant.

DAVID MASTERTON,
Campus Foreman.

JAMES A. GILKEY,
Greenhouse Foreman.

JOHN H. EDWARDS,
Head Janitor.

....

Superintendent of Buildings.

STANDING COMMITTEES.

(The President of the College is ex-officio a member of all standing committees.)

1. *Entrance Examinations*—Professors Tartar, McLouth, Mr. Baldwin.

2. *Scholarship and Graduation*—Professors Berchtold, Skelton, Kent, Weniger.

3. *Graduate Students and Advanced Degrees*—Professors Skelton, Cordley, Ressler, Weniger.

4. *Credentials, Advanced Standing, and Substitutions*—Professors Ressler, Berchtold, Johnson, Mr. Tennant.

5. *Catalogue*—Professors Berchtold, Johnson, Callahan, Mr. Tennant.

6. *Schedules*—Professor Johnson, Mr. Beaty, Mr. Graf.

7. *Attendance*—Professors Fulton, Van Liew, Phillips, Mr. Tennant.

8. *Student Organizations and Activities*—Professor Hetzel, Mr. Baldwin, Miss Williams, Mr. Griffis.

9. *Student Domiciles*—Professor Horner, Dean Crayne, Mr. Simpson.

10. *Social Entertainments*—Professors Peavy, Gaskins, McLouth, Callahan, Bouquet, Dean Crayne.

11. *Athletics*—Professors ———, Cordley, Johnson, McKellips, Peavy, Mr. Pilkington.

12. *College Exhibits*—Professors Peavy, Cordley, Van Liew, Covell, Bexell.

STAFF OF THE AGRICULTURAL EXPERIMENT STATION.

WILLIAM JASPER KERR, D. Sc.,
President.

JAMES WITHYCOMBE, M. Agr.,
Director.
Animal Husbandman.

ARTHUR BURTON CORDLEY, M. S.,
Entomologist.

CLAUDE ISAAC LEWIS, M. S. A.,
Horticulturist.

FRED LEROY KENT, B. Agr.,
Dairy Husbandman.

JAMES DRYDEN,
Poultry Husbandman.

HENRY DESBOROUGH SCUDDER, B. S.,
Agronomist.

HERBERT SPENCER JACKSON, A. B.,
Botanist and Plant Pathologist.

THEODORE DAY BECKWITH, M. S.,
Bacteriologist.

ERMINE L. POTTER, B. S.,
Animal Husbandman.

HERMAN VANCE TARTAR, B. S.,
Acting Chemist.

VICTOR RAY GARDNER, M. S.,
Pomologist.

GEORGE ROBERT HYSLOP, B. Sc.,
Assistant Agronomist.

ARTHUR GEORGE BOUQUET, B. S.,
Olericulturist.

EDWARD JACOB KRAUS, B. S.,
Research Assistant in Horticulture.

HAILEY FROST WILSON, B. S.,
Research Assistant in Entomology.

VICTOR I. SAFRO, B. S. A.,
Research Assistant in Entomology.

WILBUR LOUIS POWERS, M. S.,
Assistant Agronomist.

OTTO GERALD SIMPSON, B. S.,
Assistant Dairy Husbandman.

FRED LLEWELLYN GRIFFIN, M. S.,*
Research Assistant in Plant Pathology.

BERT PILKINGTON, B. S.,
Research Assistant in Chemistry.

JULES FERNANDO MOREL, M. D. C.,
Veterinarian.

RALPH WALDO REES, B. S.,
Research Assistant in Horticulture.

FRANK ROSS BROWN, B. S.,
Research Assistant in Horticulture.

LYMAN BUNDY, B. S.,
Research Assistant in Chemistry.

FLOYD DOUGLAS BAILEY, A. B.,
Research Assistant in Plant Pathology.

FREDERICK CHARLES BRADFORD, M. S.,
Research Assistant in Horticulture.

H. E. EWING, Ph. D.,
Research Assistant in Entomology.

A. L. LOVETT, B. S.,
Research Assistant in Entomology.

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Research Assistant in Dairy Husbandry.

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*On leave of absence.

. . . .
Research Assistant in Plant Pathology.

. . . .
Research Assistant in Chemistry.

ALFRED GUNN LUNN,
Assistant Poultry Husbandman.

FRED VERNARD TOOLEY, B. S.,
Orchard Foreman.

CHARLES EUGENE ROBINSON,
Farm Foreman.

CHARLES CHAUNCY LAMB,
Foreman Poultry Plant.

HELEN LUCILE HOLGATE, B. S.,
Station Clerk.

UNION BRANCH EXPERIMENT STATION.

ROBERT WITHYCOMBE, B. S.,
Superintendent.

UMATILLA BRANCH EXPERIMENT STATION.

RALPH WILMER ALLEN, B. S.,
Superintendent.

SHERMAN COUNTY DRY-FARM BRANCH EXPERIMENT STATION.

H. J. C. UMBERGER,
Superintendent.

SOUTHERN OREGON BRANCH EXPERIMENT STATION.

F. C. REIMER, M. S.,
Superintendent.

HARNEY VALLEY BRANCH EXPERIMENT STATION.

. . . .
Superintendent.

Oregon Agricultural College

GENERAL INFORMATION

FOUNDATION AND ENDOWMENT

In pursuance of an Act of Congress, approved by President Lincoln, July 2, 1862, a grant of land was made to each State in the Union to the amount of thirty thousand acres, or its equivalent, for each Senator and Representative in Congress to which the State was entitled by the apportionment of the census of 1860. The proceeds under this Act were to constitute a perpetual fund, the principal of which was to remain forever undiminished; but the interest arising from said fund was to be inviolably applied by each State which should avail itself of the benefits of the Act, to the support and maintenance of a "College where the leading objects shall be, without excluding other scientific and classical studies, and including military tactics, to teach such branches of learning as are related to agriculture and the mechanic arts, in such manner as the Legislatures of the states may respectively prescribe, in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions in life." Ninety thousand acres of land were apportioned to Oregon, and by an Act approved October 9, 1862, the Legislative Assembly of Oregon accepted the provisions of the congressional law.

The Land Grant Fund. The subsequent sale of this land has netted the College approximately $200,000. This at present is invested in securities bearing six per cent. interest. The Act of Congress of 1862 explicitly states that no part of the funds so appropriated, or the interest arising therefrom, shall be used for the purchase, erection, or maintenance of any building or buildings.

The Hatch Fund. Under an Act of Congress, approved March 2, 1887, the College receives $15,000 a year for the maintenance of an Agricultural Experiment station, "to aid in acquiring and diffusing among the people useful and practical information on subjects connected with agriculture."

The Morrill Fund. On August 30, 1890, an Act was passed by Congress "to apply a portion of the proceeds of the public lands to the more complete endowment and support of the colleges for the benefit of agriculture and the mechanic arts established under the provisions of the Act of 1862." This Act provided that in 1890, $15,000 should be paid to each of the land grant colleges, and that the amount so appropriated should be increased by the sum of $1,000 annually for ten years, and that thereafter the amount annually appropriated should continue to be $25,000. Under an Act of Congress, approved March 4, 1907, known as the Nelson Amendment, this fund is increased by the sum of $5,000 for the first fiscal year ending June 30, 1908, and by an additional $5,000 for each succeeding year until the total annual amount is $50,000.

The Adams Fund. An Act of Congress, approved March 20, 1906, appropriated an initial $5,000 for that year, and $2,000 additional for each year thereafter until the annual amount shall reach $15,000. This fund is "to be applied only to paying the necessary expenses of conducting original researches or experiments bearing directly on the agricultural industry" of the State, and therefore supplements the Hatch Fund in the maintenance of the Experiment Station.

In addition to the income from the National Government, the College is dependent upon the State Legislature for such appropriations as are required for the maintenance and development of the institution, in accordance with the provisions of the Acts of Congress, and in response to the industrial and educational demands of the State.

HISTORY.

As there were no State colleges in Oregon in 1868, the Legislature of that year, which provided for the location of the land received under the Act of 1862, gave the interest on the funds derived from the sale of the land to the Corvallis College, a private institution in Benton County, which was then under the control of the Methodist Episcopal Church, South. For a number of years, none of the land granted was sold, and the Legislature made small annual appropriations for the support of the school.

In 1885, the church voluntarily relinquished its claim on the funds of the college and the State assumed control of the institution. The Legislature of that year provided for the "permanent location of the State Agricultural College at Corvallis, in Benton County," on condition that the citizens of said county should, within four years, erect on the "farm containing thirty-five acres in the immediate vicinity of said city, known as the Agricultural College Farm, brick buildings for the accommodation of said State Agricultural College at a cost of not less than $20,000." During the summer of 1887, the corner stone of the building erected by the citizens of Benton County was laid by the Governor of Oregon, amid imposing ceremonies.

This structure, now known as the Administration Building, was the nucleus around which other buildings soon began to cluster as necessity and growing interest demanded. For a year or two there was ample room; but, as the institution grew, more land was needed and provided, and instead of thirty-five acres originally comprising campus and grounds, the institution now owns two hundred and twenty-four acres; and instead of one structure, there are now thirty. There has also been an increase in the attendance from ninety-seven to upwards of seventeen hundred students. Twenty years ago, most of the students came from Benton and neighboring counties. Now, every county in Oregon, twenty other states, and six foreign countries are represented. The increase in the number of students called for an increase in the number of the faculty. This body, from the number of five in 1884, has grown until it now closely approaches the six-score mark. Other features usually found in connection with progressive educational institutions have grown in equal ratio. The courses have been strengthened, the standard has been advanced, and other improvements made from time to time, which have added to the thoroughness and efficiency of the work.

GOVERNMENT.

The general government of the College is vested primarily in the Board of Regents and, under their control, in four other administrative bodies—the Administrative Council, the College Council, the Faculty, and the Experiment Station Staff. These bodies, in the exercise of their respective duties, determine the questions of policy and regulate all matters relating to the interests of the institution.

The Board of Regents consists of thirteen members, of whom the Governor, the Secretary of State, the Superintendent of Public Instruction, and the Master of the State Grange, are ex-officio members. The other nine members are appointed by the Governor with the approval of the State Senate, and hold office for a term of nine years. Under a law of the State Legislature, passed in 1885, the Board of Regents constitutes a body corporate, under the name of "The Board of Regents of the State Agricultural College, * * * with power to sue and be sued, and to make contracts," and to enact such regulations as may be necessary for the maintenance and development of the College.

The Administrative Council consists of the President of the College, the Director of the Experiment Station, and the Deans of the different Schools. The function of this Council is to consider and determine the larger questions of policy and administration.

The College Council is composed of the President of the College, the Professors, and Assistant Professors. This body considers all general questions relating to the educational work and policy of the College; arranges and correlates the courses of study, and determines the requirements for admission and graduation. The different committees of the College Council, representing the several schools of instruction, have charge of the enrollment and progress of students in the respective schools, and investigate the records of all candidates for graduation.

The College Faculty includes the President, the Professors, the Assistant Professors, the Librarian, the Instructors and the Assistants. It considers routine questions of method and discipline, for which it is particularly well adapted, being in close contact with all that pertains to student interests and student life.

The Experiment Station Staff includes the President of the College, the Director of the Experiment Station, and the heads of the various departments of the School of Agriculture that are engaged in research and experimental work. The members of this staff are engaged in the investigation of problems encountered in the development of the agricultural interests of the State. They also distribute information regarding their investigations by means of correspondence, circulars and station bulletins.

The Students. The College does not undertake to prescribe in detail either its requirements or prohibitions. Students are met on a plane of mutual regard and helpfulness. Since the advantages of the institution are provided at public expense, the students are under special obligation to perform faithfully all their duties, not only to the College, but also to the State and to the community. Whenever the deportment of any student is such that his influence is inimical to the interests of the institution, he will be relieved from further attendance.

PURPOSE AND SCOPE.

The purpose of the College is to provide, in accordance with the Acts of Congress under which it is maintained, a liberal, thorough, and practical education,—an education that will afford the training required for efficient service in different branches of industry. The distinctive technical work covers the three great fields of production, manufacture, and commerce. Special attention is given to the application of science. All the practical work in the laboratories, in the shops, in the orchards, and on the farm, is based on scientific principles. While the industrial or technical work is emphasized, the importance of a thorough general training, of mind development, and culture, is recognized in all of the work throughout the institution. The object is to meet the demand for a broad and general education, supplemented by special technical training.

The work, therefore, covers a broad field, including technical courses along the different lines of agriculture and forestry, commerce, pharmacy, engineering, and household technology; with the necessary training in the basic subjects of mathematics and the natural and physical sciences; and also the general training in language, literature, history, and civics, which constitutes an essential part of a liberal education.

In all the work of the institution, the object is to train the mind, the eye, and the hand to act in unison; to unfold and co-ordinate the faculties of mind and body; to develop a symmetrical manhood and womanhood, and a just appreciation of clean, upright citizenship.

LOCATION.

The seat of the Oregon Agricultural College is Corvallis, a city of over five thousand inhabitants, situated at the head of navigation on the Willamette River. As the name implies, it is in the heart of the far-famed Willamette Valley. It is readily accessible by railway from all parts of the State; it has free mail delivery; there are many churches, and no saloons, and the moral tone is equal to that of any city within the boundaries of the State. It is a city of homes, and its people are justly proud of the great institution within their midst, and jealously guard its good name.

Situated on high, well-drained land, open to the invigorating sea-breeze, Corvallis is one of the most healthful cities in the State. It has never been visited by any dangerous epidemic disease, and the possibilities of such visitation in the future appear remote, for the city has a complete modern sewerage system and a first-class gravity water system, supplied from springs high up the slope of Mary's Peak, the tallest mountain in the Coast Range, some fifteen miles away to the west. The city and its environs are conducive to wholesome student and home life. It has an ample supply of pure mountain water for all domestic and sanitary purposes. The atmosphere is purified and the climate ameliorated by almost constant ocean breezes,—warm in winter and cool in summer. The surrounding landscape elicits praise from all who behold its delightful charms as viewed in the extensive area of fertile fields, gardens and orchards. The wooded glens of the near-by foothills, and the rippling mountain brooks, or the more pretentious streams frequented by canoe, yacht and launch parties, are fruitful sources of recreation; while the magnificent distant views to the east, where the fir-clad Cascade Mountains, with their wealth of trees and the perennially snow-capped sentinels,—Hood, Jefferson, and the Three Sisters, present a constant panorama of picturesque mountain scenery. With such an environment, the city is truly an ideal location for a college and a home.

GROUNDS AND BUILDINGS.

The College Grounds comprise two hundred and thirty-five acres and occupy a slightly elevated and gently undulating site wholly within the western limits of the City of Corvallis. That part of the grounds, over fifty acres in extent, lying immediately about the several buildings and usually designated as the lawns and campus, is tastefully planted with both native and exotic ornamental trees, shrubs, and herbs. The one hundred and eighty acres used for the farm, garden and orchard operations is so platted and planted as to meet the demands of the various lines of work and still conform to a general scheme of landscape embellishment. Broad drives and walks traverse the grounds in all directions, thus rendering every objective point easily accessible. The numerous magnificent specimen trees, groups of shrubbery, and massed borders are a source of enjoyment as well as instruction to all those who frequent the grounds. The scheme of planting has been such as to give the grounds an air of peaceful activity, orderly effort, earnest purpose, and quiet refinement. Daily association with such scenes, for a period of years during the time when men and women are forming the habits of thought and action that will be theirs through life, is certain to have a deep-seated and subtle influence for good in moulding the character of future citizens.

The following brief descriptions will convey a general idea as to the principal buildings and the purposes for which they are used:

The Administration Building is a three-story brick structure 90x120 feet, containing thirteen recitation rooms, the library, and the offices of the President, the Registrar, and the Secretary. Centrally located and on a slight eminence, it commands an unsurpassed view of the campus, the City of Corvallis, the Willamette River, and the picturesque Cascades.

Science Hall, situated southeast of the Administration Building, and constructed of gray granite and sandstone, covers a ground space of 85x125 feet, has three stories and basement, and contains twenty-nine rooms. It is one of the most substantial buildings on the grounds and within it, at present, are the Dairy, Bacteriological, Forestry, and Chemical departments, with their various laboratories, recitation rooms and lecture halls, together with the general museums.

Agricultural Hall stands southwest of the Administration Building and, when completed, will be the largest structure on the campus. It is an imposing edifice of brick and stone and will consist of the central or Administrative building, the north or Agronomy wing, and the south or Horticultural wing.

The central or Administrative Building is 66x140 feet, four stories and basement, and contains a total of forty-two conveniently arranged and well-lighted class rooms, laboratories and offices. Upon the first floor are the offices of the Director of the Experiment Station, the Dean of the School of Agriculture, the mailing rooms, Agricultural library and, until the Horticultural wing is completed, the offices, research laboratories and four class rooms of the department of Horticulture. The second floor is occupied by the departments of Horticulture, Industrial Pedagogy, and Animal Husbandry; the third floor, by the departments of Zoology and Entomology, and Poultry Husbandry; and the fourth floor, by the departments of Botany and Plant Pathology, and Art.

The north or Agronomy wing is 72x130 feet, and three stories high. It faces north and east, commanding splendid views of the valley and the College grounds. It is thoroughly modern in all its equipments, and while intended solely for the work in Agronomy, at present it accommodates, temporarily, three departments, with parts of others. The first floor, occupied by the department of Agronomy, contains eight rooms, and is especially arranged for such work as Agrostology, Soil Physics, and kindred subjects. The second floor contains nine large rooms, particularly arranged for the work in Domestic Arts, as dressmaking, sewing, millinery, cutting, fitting, and modeling. The third floor, with eight rooms, is fitted for the work of the course in Commerce, consisting of accounting, shorthand, typewriting, banking, merchandising, and other other phases of commerce.

The interior finish throughout is natural grain Douglas fir, burlap wainscoting and tinted walls. Every room is provided with hot and cold water, electric lights, steam heat and specially designed furniture. The laboratories and class rooms are well equipped with desks, lecture chairs, tables and other apparatus; and all appliances are of the most recent design for the work in hand.

The Horticultural Building is a two-story frame structure, 30x36 feet, with accompanying glass houses having separate floor space of two thousand, three hundred square feet. It is north of the Administration Building, and contains the principal laboratories of the department of Horticulture.

Greenhouses. A new range of greenhouses, modern in every respect, has recently been constructed with a view to aiding the student in his studies in commercial greenhouse work. The range is made up of five even-span houses, three ninety feet long by twenty feet wide, and two thirty-three feet long by twenty feet wide, making the total area under glass 6,720 square feet. A modern hot water heating apparatus has been installed with valves and pipes so arranged that different temperatures can be maintained in every separate thirty feet of house in the three long houses. Each of the large houses has been divided into sections thirty feet long so that the entire space in each may be given up to a single crop. Of the two smaller houses, one is given up to research work and one to the propagation of plants in general. The central building is large and conveniently arranged for all work that is to be met with in greenhouse establishments. Such crops as carnations, chrysanthemums, violets, palms, ferns, general pot plants, and forced vegetables like tomatoes, lettuce, and cucumbers are grown in these houses.

Mechanical Hall, about one hundred and fifty yards northeast of the Administration Building, is two stories high, 90x120 feet, and constructed of Oregon gray granite and sandstone. It is a fine, substantial building, well arranged and admirably adapted for the purpose for which it is used. Besides recitation and lecture rooms for the classes in Mechanical, Electrical and Civil Engineering, it contains the Physical Laboratories.

Mechanical Arts Building is a modern, well-lighted structure of brick with cement foundations, 52x52 feet, two stories high, flanked by a one-story wing on the east, 40x220 feet, and a similar wing on the south, 40x200 feet. The central portion contains the office of the Dean, a display room for student work, a tool room for the machine shop, and a finishing room for the wood shop. On the second floor is a general drafting room, 30x50 feet, with a commodius blue-print and dark room adjoining. The south wing contains the main wood-working shop, 40x97 feet, a stock room, 30x40 feet, a carpenter shop, 20x40 feet, and the College printing plant, 40x50 feet. The east wing contains the machine shop, 40x80 feet, the blacksmith shop, 40x100 feet, store room for coal and iron, lockers, and toilet rooms.

The Mining Building is a small frame structure immediately south of the Administration Building and contains the Mining Engineering offices, the Geological and Mineralogical museum and a recitation room which will accommodate about twenty-five students.

The Mining Laboratory is situated immediately south of Shepard Hall. It is a one-story brick structure, 40x70 feet, and well lighted. This building has been remodeled recently, and now contains the Geological and Mineralogical laboratories, an assay laboratory, a furnace room, a weighing room and supply room for the work in Mining Engineerng.

The Gymnasium is situated about two hundred yards south of the Administration Building. It is built of stone and wood, 70x120 feet. Its one large room is also used as a lecture hall, an assembly room, or a place for entertainments when large audiences are expected. It will accommodate fourteen hundred persons. In the basement are the dressing rooms, shower baths and offices. The main hall, which is twenty feet to the under side of the trusses, has an unobstructed floor area of 8,000 square feet. It is encircled by a suspended gallery, six feet wide.

The Armory is situated about two hundred yards south of the Administration Building. It is the largest of its kind in the United States and is built of concrete and steel, 126x355 feet. The drill hall portion has an unobstructed area of 36,000 square feet. The arms room, offices, and drill hall afford facilities for the accommodation of 1,000 men.

The Pharmacy Building, about two hundred yards west of the Administration Building, is a two-story frame structure, containing two large laboratories, three lecture rooms, a machinery and drying room, a pharmacognosy room, store rooms, special laboratories and office. The whole building is amply lighted and ventilated, and affords adequate and suitable quarters for the department.

The Power Plant, a one-story brick building in the rear of Mechanical Hall, contains the requisite equipment for supplying the various buildings with heat, light and power. The apparatus installed in this building serves the purpose also of demonstration equipment in these special lines.

The New Heating Plant, located south of the Armory, is a one-story reinforced concrete building, with a concrete tunnel and conduits leading to the various buildings on the south side of the campus. It contains one two-hundred-fifty horsepower boiler with the necessary equipment for heating the buildings connected to same.

Waldo Hall, the women's dormitory, occupies a commanding site one hundred and fifty yards southwest of the Armory. It is a large building of striking appearance, with a cement foundation and basement wall, and a cream-colored, pressed-brick superstructure, three stories high. The dimensions are 96x240 feet; and it contains one hundred and fifteen rooms for students, besides a kitchen, dining room, parlors and Domestic Science laboratories. It is modern in all its appointments and finished throughout in natural grain Douglas fir, stained to conform to the color scheme.

Cauthorn Hall, the men's dormitory, is a well-proportioned frame building, situated on a sightly spot in the extreme western part of the campus. It is 160x50 feet, has three stories and basement, and contains sixty-two rooms, besides a large kitchen, dining room and reception rooms. Its furnishings and appointments are adequate and in harmony with its use. Each floor is supplied with hot and cold water, baths, electric light, and steam heat.

Shepard Hall. The new Y. M. and Y. W. C. A. building was completed in time for the opening of the school year of 1908. The total cost was something over $22,000. The original plans have been somewhat modified, giving in many respects a better building than planned at first. This building contains in the basement a swimming pool, shower baths, lockers, banquet rooms, kitchen, wood room, and accessories. The first floor contains a large lobby which is used for a reading room, game room for social events, and general assembly. It also contains an office for the General Secretary, a public office, a cabinet and check room combined, a room for the Y. W. C. A., and one to be used jointly by the Athletic Association and the staffs of the different College papers. The second floor contains six rooms for the use of the literary societies. The third floor is devoted for the present to dormitory purposes. The building is known as Shepard Hall, and is a fitting tribute to the memory of Clay Shepard, who gave his life to the cause of cleaner, higher and truer citizenship as exemplified in student life.

Farm Buildings. The College Farm is now well equipped with farm buildings, and modern facilities for conducting practical and scientific work in animal husbandry.

The New Barn recently constructed is commodious, modern, and attractive in design. It is a frame building, with cement foundation and brick pilasters. The main part is 50x100 feet, two stories high, with two wings extending to the south, each 46x80 feet, one story in height. There is also a milk room, an engine room, and a fuel room. The building is utilized as a general barn, and will accommodate nine horses and seventy cattle, with sufficient space for the storage of feed. On the first floor of the main portion are located the horse stalls, bins for storing the various grains and mill feeds, a seed room and space for vehicles. The concrete basement is of sufficient dimensions to permit the storing of about one hundred tons of roots. The second floor has a storage capacity for one hundred tons of loose hay. A prominent feature of the barn is the cow stable. This is strictly modern, well lighted and well ventilated, with concrete floor, thirty individual, tubular-iron, adjustable stalls, and two commodious box stalls. The aisles are wide, and thus not only furnish an abundance of air space for the animals, but they also afford visitors an excellent opportunity to view the stock. The milk and engine rooms are conveniently situated but sufficiently isolated for proper sanitation. This building is lighted by electricity, well supplied with water, thoroughly sewered and furnished with an elaborate system of bell traps.

The old barns were moved and remodeled so as to harmonize with the new structure. They contain rooms for housing machinery, sheds for fattening cattle, and a commodious piggery.

The Poultry Houses. On a ten-acre tract of land, lying southeast of Cauthorn Hall, and west of Waldo Hall, there have been erected several buildings specially planned for the needs of the department of Poultry Husbandry. These buildings comprise an incubator house, with a capacity of twenty-four incubators and complementary apparatus, and thirty colony houses for laying stock and growing chicks. The colony houses are movable and constructed upon a plan that could be adopted by any farmer. The colony brooding coops are also portable, and are used for investigations in both natural and artificial brooding.

EQUIPMENT.

It is impossible, in the brief space that is devoted to this topic, to give more than a bird's-eye view of the equipment of the institution. However, the following data have been so arranged as to give the prospective student a very good general idea of the comprehensive equipment that the institution possesses for carrying forward its designated work.

Agronomy. The new Agronomy Building provides spacious and well lighted offices, class rooms, laboratories, store rooms, and other facilities for this work. The large soil laboratory is newly equipped with the most modern apparatus for an exhaustive study of the physical properties of soils and of problems of soil fertility. Abundant desk and locker room, supplied with running water, gas, compressed air, and electricity, is furnished for sections of fifty students. Compound microscopes, compacting machines, aspirators, percolators, capillary tubes, mulch cylinders, electric centrifuges, shakers, and sifters, electrically heated air baths, thermometers, soil sieves, scales, analytic balances, chemical apparatus, pots and wire baskets, and greenhouse room, form part of the equipment for the work in Soil Physics and Soil Fertility. Soil surveying and mapping outfits, soil survey charts of the United States, and specimens of the chief soil types of Oregon and of the United States are being assembled.

For the work in Crop Production, another large laboratory is provided with special grain-judging compartment desks, sufficient to accommodate sections of thirty students. Part of the apparatus used for the several courses in this subject are grain sampling and mixing machines, complete sets of compound microscopes, dissecting microscopes, and large, mounted field lenses, general and special germinating chambers, various types of germinators, grain tester, grain receptacles of all kinds, and complete sets of seed and plant specimens. Each student is provided with samples of both the seed and the plant of all the important field crops and weeds of Oregon and of the United States.

Farm Mechanics is provided for in a separate building on the farm, fitted with shafting and power, and fully equipped with all classes and types of tillage implements, manure spreaders, seeding, harvesting, and power machinery, farm engines of all kinds, together with apparatus for testing these machines. Drain tiles, surveying instruments, tile and ditching tools are furnished for drainage and irrigation work.

The Agronomy class rooms have demonstration tables, lantern facilities, illustrative charts of various kinds and a new reference library.

Animal Husbandry. The barns and accessory buildings on the farm, used jointly with the department of Agronomy, meet the requirements for comprehensive work in Animal Husbandry. The stock available for illustration and demonstration purposes, includes typical specimens of Jersey, Holstein, Guernsey, Ayrshire, and both beef and milk types of Shorthorn cattle; draft horses; Cotswold and Shropshire sheep; and Yorkshire and Berkshire swine. In addition to the College stock, students are afforded an opportunity to examine, score, test, and otherwise study the splendid specimens of the various other breeds kept by private breeders and stockmen on neighboring farms. The department possesses extensive sets of lantern slides, maps, charts and the necessary minor apparatus for conducting the various lines of lecture, laboratory, field, and research work necessary to the broad courses of study in the several phases of Animal Industry.

Dairy Husbandry. This department occupies about one-half of the first floor of the Agricultural Hall. At the left of the main entrance is the office and recitation room, and to the right are located the dairy rooms proper. The main work room, located in the northwest corner, is 24x44 feet, with cement floor sloping toward the center. This room is equipped with seven of the latest styles of cream separators, suitable for farm use. These machines are mostly loaned to the department, and are replaced whenever in the opinion of the dealers there have been important changes in the construction of later models. There are also combined churns and workers, box churns, table workers, receiving and ripening vats, Pasteurizer and cooler, and the necessary apparatus for the manufacture of full cream Cheddar cheese.

Adjoining the main work room are lockers for students' use, a well-lighted boiler room equipped with vertical boiler and engine, and a wood and store room. In the northeast corner of the building is the testing laboratory, equipped with all the modern devices for testing milk and its products, such as hand and turbine Babcock testers, curd test, moisture-determination apparatus, cream scales, and automatic acid measures. Two commodious cheese curing rooms, 10x16 feet and 12x16 feet, respectively, complete the quarters of the Dairy department.

Horticulture. Laboratories and class rooms for the department of Horticulture are located principally in the new Agricultural Building. They consist of a Pomology laboratory specially equipped with tables and accessories for classifying, describing and judging fruits and vegetables; special drafting laboratory, containing tables, cabinets, lockers, etc., for students in Landscape Gardening, Greenhouse Construction, and Commercial and Practical Pomology; and a packing laboratory containing the newest and most approved appliances for skilful handling of fruits, including box machines, grading and packing tables, and fruit presses. The Plant Propagation laboratory is well equipped with tables, benches, vices, etc., for budding and grafting. The Floriculture laboratory contains apparatus for mixing of soils and fertilizers, seeding, transplanting, bedding, and preparing flowers and vegetables for the market. Lecture rooms are provided with facilities for illustrated lectures by means of lanterns, photographs and charts. The department is fortunate in possessing a good laboratory and general assortment of tools for conducting field exercises in Pomology, Landscape Gardening, and Truck Gardening.

Poultry Husbandry. The equipment of this department consists of a number of poultry houses of different types; about 300 fowls of several breeds and varieties, sixteen incubators of six different makes, bone and clover cutters, trap nests, cramming machines, and various other appliances that are necessary for practical poultry keeping. There are also sets of charts, lantern slides and photographs, illustrating breeds of fowls, poultry farms and houses.

Forestry. The department of Forestry occupies the third floor of Science Hall (old Agricultural Hall). It has a complete herbarium of the forest trees of the Pacific Coast, as well as a cone collection representing the important commercial conifers of the United States. It has apparatus for applying preservatives to timbers by the open tank method, timber testing machinery, incubators for testing tree seeds, wood specimens, stereopticon and slides, compound and low power microscopes, hypsometers, increment borers, scale sticks, calipers surveyors' compasses and chains, pack outfits, axes, saws, drafting tables,and other equipment necessary for efficient laboratory and field work. Valuable collection of tools used in logging have been loaned the department by several commercial companies. A nursery has been established on the College farm, in which native and exotic timber-tree seedlings are being grown. The City Water Company of Corvallis has placed a timbered tract of eighty acres at the disposal of the College for demonstration purposes.

Domestic Science. This department is located on the basement floor of Waldo Hall, occupying the entire floor, except that part used for the hall dining room and kitchen. There are two large school kitchens, a lecture room, and a room for instruction in home nursing, with proper furnishings to give practice in making and changing beds for the sick and the general care of the sick room. Th school kitchens are equipped with work tables, cupboards, ranges, gas stoves and all necessary utensils and modern conveniences for teaching cookery. The dining room is furnished with an extension table, chairs, cupboards, china, silver and table linen. The department is also provided with a large laundry, equipped with stationary tubs, ironing boards, skirt boards, and other necessary furnishings.

Domestic Art. A large portion of the second floor of the Agronomy Building is allotted to the work in Domestic Art, containing rooms for hand and machine-sewing, cutting and fitting, millinery, household decoration, etc. The machine rooms are furnished with the latest improved machines; and the sewing rooms are provided with tables, electric irons, wardrobes and cupboards for holding unfinished work, large display cabinets for finished work, and cabinets for the collection of samples showing the processes of manufacture of cotton, wool, silk, and linen.

Civil Engineering. In addition to joint use with the Mechanical department of the testing laboratories and blue print rooms described elsewhere, this department has for its exclusive use a suite of five well-lighted rooms, suitably arranged on the second floor of Mechanical Hall. This suite includes an office, two recitation and lecture rooms; an instrument room and a drafting and designing room.

The drafting and designing room, 28x47 feet, is well lighted and fully equipped with thoroughly modern and convenient drawing tables, supplied with individual lockers for insruments, and other apparatus: The instrument room is conveniently arranged, having an individual glass-front case for each instrument and its accompanying equipment, which includes marking pins, tape, range-poles,notebook, etc. The instrmental equipment includes the following: twelve transits, five of which are provided with solar attachment; eight levels, four plane-tables, one compass and two current meters, all high-class instruments of various standard makes and styles; a sufficient supply of level and stadia rods, range-poles, tapes, chains, plain and prismatic compasses, aneroid barometers, clinometers, planimeters, plumb-bobs, hand levels, etc., together with a well-selected assortment of specifications and blue print plans of engineering structures for illustrative purposes.

Electrical Engineering. The laboratory of this department occupies a large part of the west half of the first floor of Mechanical Hall, and is divided into several rooms; one for testing, one for instruments, and another for supplies. Besides the equipment therein, including generators, motors, and other apparatus, the machinery in the College Power Plant, and sub-station, with its 10,000-volt step-down transformers, is available for study and testing purposes. Three-phase electrical energy is supplied by the long distance transmission line or by the local generating units, as desired.

In the laboratory is a 6½x15 foot switchboard, consisting of thre asbestos wood panels on which are mounted a number of voltmeters and ammeters for direct and alternating current; a power factor meter; a frequency meter, and synchroscope; a set of synchronizing lamps; circuit breakers; switches; and a large number of plug terminals, the leads of which extend to the eight machine platforms; two slate panels with instruments and switches for direct current machines; and an arc light regulating panel. Immediately adjacent thereto is a controller, auto-transformer and rheostat rack, six feet high by sixteen feet in length.

The machine platforms just mentioned are four feet wide by fourteen feet long, and have upon them the following equipment: one five, one seven and one-half, and three ten-horse power, three-phase, induction motors; two five, two seven and one-half, two ten, and two twelve and one-half kilowatt, 125-volt direct current generators; one ten-kilowatt double current generator, and one two-kilowatt rotary converter; two two and one-half kilowatt induction motor generator sets; one two and one-half kilowatt synchronous motor generator set; one seven and one-half kilowatt revolving field alternators, with three additional rotors, and one seven and one-half kilowatt revolving field alternator, from both of which current of single, two, three, four, six and twelve phases may be taken; one fifteen-arc light constant current dynamo; one five-arc light regulating, one ten-kilowatt 110,000-volt high tension testing, one ten-volt 1000-ampere welding, one five kilowatt 25,000-volt wireless, and a number of ordinary transformers and compensators.

The instruments available are ample in number and range, and consist of direct and alternating current voltmeters and ammeters; milli-voltmeters and shunts; wattmeters and watt-hour meters; and the following precision instruments for standardizing: one ammeter and one voltmeter operating on the Kelvin balance principle; one poly-phase and two single-phase indicating wattmeters, and one 100-ampere manganin shunt.

Mechanical Engineering. The department laboratories contain the apparatus necessary for the work in calibration, strength of materials, testing of lubricants, power engineering and hydraulics. Among the more important pieces the following may be mentioned:

For preliminary work and calibration: Thacher calculating instrument, several high-grade planimeters, gage tester, device for calibrating indicator springs, torsion transmission dynamometer, etc.

For work on materials: A 50,000-pound Riehle universal testing machine fitted with autographic recording device, a high-grade Riehle recording extensometer, Olsen impact machine and rattler for testing road materials, standard rattler for paving brick, a 1000-pound Fairbanks cement testing machine with other apparatus for complete standard tests on cement; in addition to the above, there are the usual testing machine accessories and fittings needed for standard work.

Various tests may be made on lubricants, bearing metals, and different types of bearing by means of a Golden bearing and oil dynamometer. There are also provided the usual minor pieces, such as flash point apparatus, viscosimeter, etc.

For the work in steam and power engineering there is available the equipment of the College Power Plant, which consists of a bank of three fire-tube boilers supplying steam to the heating system and to a forty-horse-power Ideal automatic high speed engine. The engine room has been converted into a power laboratory and contains, in addition to the engine mentioned above, a 7x8 throttling engine, a three-horse-power gasoline engine, an eight-inch Reeco-Ericson hot air pumping engine, a large exhaust fan, a blower, and a part of the hydraulic equipment of the department.

All the engines are fitted with brakes of various kinds, and other auxiliaries for testing. The power plant also affords facilities for testing feed pumps, injectors, feed water heaters, etc. Of smaller apparatus there might be mentioned five indicators, one a Trill instrument with continuous drum; reducing motion, and high pressure piston, two steam calorimeters, fuel calorimeters, flue gas sampling and analysis apparatus, two pyrometers, draft gages, recording and indicating pressure gages, etc.

Part of the hydraulic equipment is located in the power laboratory; this apparatus consists of several steam pumps, a centrifugal pump, 12-inch Doble laboratory water motor, hydraulic ram, two meters, and other small apparatus. The College water supply is now taken from the city mains, and some hydraulic tests are carried out at the pumping plant, which has become part of the laboratory equipment. Measurements of neighboring streams are also made by the weir method and by current meter.

The Wood Shop, supplied with the best machines and tools the market affords, contains twenty-four double benches of modern design, accommodating forty-eight students. Each bench is provided with patent rapid action vises for holding the work, and is furnished with two sets of hand tools, consisting of rip saws, cut-off saws and back saws, planes, chisels, paring gouges, marking gauges, try squares, hammers, dividers, and oil stones. The machine equipment of this shop consists of fifteen wood-turning lathes, each furnished with a set of tools; one iron saw-table with rip and cut-off saws, one band saw, one jig saw, 24-inch surface planer, 16-inch glue joiner, four-sided 4-inch moulder, power mortiser and borer combined, post boring machine, swinging arm sander, two grindstones, one concave for gouges and one straight for plane irons and chisels; there are also two glue tables with clamps of various sizes and one steam and gas glue heater of three gallons capacity; the power is furnished by two three-phase induction motors of fifteen horse-power each.

The Forge Shop contains forty-two down draft forges of the most improved pattern. Blast is furnished by a steel pressure blower driven by a 10-horse-power induction motor, and the smoke and gases are removed by an 80-inch exhaust fan, driven by a 20-horse-power motor. Each forge is provided with anvil, hammers, hardies, tongs, and other small tools. There are also swedge blocks and vises at convenient points in the room for general use.

The Machine Shop contains one 24x24-inch iron planer, one 15-inch shaper, one 12-inch shaper, one universal milling machine, one universal tool grinder, one wet tool grinder, one radial drill, one 20-inch drill press, one sensitive drill press, one 20-inch engine lathe, one 16-inch engine lathe, one 16-inch universal turret lathe, one 14-inch modern geared lathe, five 14-inch engine lathes, two 10-inch speed lathes, one shop saw, one automatic knife grinder, and twelve bench vises. A 20-horsepower induction motor furnishes the power. A tool room adjacent contains the small tools, such as twist drills, taps, dies, reamers, calipers, gauges and scales. These tools are given out to the students on the check plan.

A Foundry is to be added during the summer of 1911. This building will be ready for occupancy when the college opens in the fall, and will contain a modern foundry equipment consisting of a cupola, brass furnace, core oven and accessories.

Mining Engineering. This department occupies two buildings; the small structure south of the Administration Building contains the Mining Engineering office and recitation rooms, while the other, just west of the Administration Building, contains the laboratories in Geology, Mineralogy, Metallurgy, and Assaying. The department possesses the following geological and mineralogical collections:

A Mineral Type Collection, consisting of about twelve hundred and fifty well characterized and labeled specimens used by the students for purposes of study and comparison; a Working Collection of minerals, consisting of about four thousand unlabeled specimens similar to those in the Type Collection, used by the student for study and determination; an Exhibit Collection of minerals, consisting of large and attractive specimens of minerals and rocks; a Crystal Collection, containing about eight hundred natural crystal forms; a Crystal Model Collection, consisting of forty-eight large glass crystal models and about five hundred wooden models used in the study of Crystallography; a Blowpipe Collection, containing minerals and materials used in blowpiping; the United States Geological Survey Educational Series of Rocks; Foote Rock Collection; a Working Collection of Rocks, containing unlabeled specimens for the use of the student in the work of petrology.

The assaying and metallurgical laboratory is equipped with two double muffle coal furnaces, two gasoline muffle furnaces, two gasoline crucible furnaces, one combination gasoline furnace, one Parr's pyrometer, button balances, one of the new balances having a multiple rider attachment, pulp balances, cupel machines, crushers, grinders, sampling apparatus and all necessary appliances for a modern assay laboratory.

For the work in Mine Surveying the department is equipped with two highly improved mining transits with auxiliary side or top telescopes, two Brunton pocket transits together with necessary minor equipment incidental to mine surveying work.

The department has recently received, through the generosity of the Hardsocg Wonder Drill Company, Ottumwa, Iowa, one Hardsocg Hammer Drill (Model 19c), with full complement of steel. The Ingersoll Rand Company of New York has also loaned to the department one new Davis Calyx Core Drill, a large machine drill used in prospecting. This machine is a very valuable addition to the mining equipment. The department also has a complete outfit of hand drilling tools.

Commerce. This department is completely equipped for thorough and efficient work in modern business courses. Each room is specially designed and furnished for the work to be conducted in it. The furniture of the department consists of individual desks and counters, a complete set of modern banking fixtures, a wholesale house, a retail house, a commission house, freight, real estate and insurance offices. Permanent blank books, letter files, rubber stamps, copying presses, college currency, blanks and similar material are provided by the College. A Burroughs Adding Machine is in constant use in the department. The room for typewriting contains twenty standard machines, each provided with approved conveniences for the operator. The room for stenography is furnished with tables designed for convenience in practical work; also equipment for illustrating various systems of filing. The department of Political Economy is developing a commercial museum for use in the various courses in social science.

Pharmacy. This department has its lecture rooms and laboratories in Alpha Hall, a building which amply meets the needs for space, light and ventilation.

In the way of equipment, in addition to the usual outfit of desk apparatus for the individual student, the department is supplied with a number of special pieces of apparatus for general use, as pharmaceutical stills, from the simple retort to the complicated vacuum still; drug mills, for hand and power; suppository machines, for fusion and for compression; tablet machines, mold and compression; pill machines; tincture presses; capsule filling machine; percolators and much minor apparatus.

Zoology. The laboratories of this department occupy the following rooms on the third floor of the new Agricultural Hall: two offices, research laboratory for entomology, physiological laboratory, general laboratory for zoology, two lecture rooms, vault and photographic dark room. The general laboratory is equipped with desks with individual drawers to accommodate 280 students; each desk is provided with compound microscopes, dissecting microscopes, and various minor pieces of apparatus. The physiological laboratory is similarly equipped for 225 students and in addition is provided with an articulated skeleton, a dissectible human skull, a complete Azoux model of the human body, greatly enlarged Azoux models of the brain, eye, ear, and other organs, a set of the celebrated Leukart zoological charts, and a good supply of specimens and dissections for illustrating the work in physiology. The entomological laboratory contains the entomological collections, a portion of the department library, and although used as a research laboratory for the head of the department and assistants, it is fully equipped for ten or twelve advanced students. It is provided with high grade compound and dissecting microscopes, a Minot rotating microtome, a Minot automatic precision microtome, water bath, 5x7 view camera, 4x5 micrographic camera, laboratory balances, eye-piece, and stage micrometers, and an abundant supply of minor instruments.

The museum, which occupies most of the fourth floor of Science Hall, contains, in addition to a beautiful collection of native birds, a small collection of mounted mammals, a collection of bird skins from Alaska, a large collection of eggs of native birds, a small collection of fishes and reptiles, a considerable number of marine invertebrates, including a small but beautiful collection of Philippine shells, an extensive collection of native insects, and numerous specimens of a miscellaneous nature.

Chemistry. The department of Chemistry occupies nearly all of the south wing of Science Hall, and one room in the basement of the central portion. In this latter room, aside from desk space for seventy-two students, is a 150-light Terrill gas machine that supplies gas for the different laboratories throughout the building. The main lecture room is situated on the third floor, and has a seating capacity of one hundred and fifty. It is provided with lecture tables that are supplied with gas, electricity and water. Adjoining the lecture room is a small preparation room, in which is kept all special apparatus used for lecture demonstration, as well as supplies for the agricultural laboratory. This room is supplied with all the necessary apparatus for the proper elucidation of the principles of this branch of chemistry.

The organic laboratory is fitted for twenty-four students. Each student has a drawer and locker, a sink, a Richards' filter pump, a full set of reagent-bottles, individual gas and water outlets. Next to this laboratory is a room set apart for fuel and gas analysis and for photographic chemistry. The special apparatus of this room consists of Orsats' bulbs, and pipettes, Winkler's burettes, the latest forms of Hempel's bulbs, Victor Myers', Dumas', and Hoffman's apparatus for molecular weight determination, Beckman's cryoscope, Landsberger's ebulliscope, Parr's latest form of calorimeter, analytical and torsion balances, and the usual small pieces that accompany the above.

The largest room in the building is the main general laboratory, which wall accommodate three hundred and ninety students, in four sections. Adjacent to this laboratory is a store room amply stocked with all necessary supplies and apparatus. The weighing room contains eight analytical balances of the best type for student use, and is well lighted and ventilated The quantitative laboratory, which will accommodate seventy-two students in three sections, is in the basement, and adjoins the store room. It is fully supplied with various kinds of calibrated ware, as flasks, burettes, cylinders, urinometers, lactometers, hydrometers, and barometers; centrifuges for rapid separation of precipitates, blast lamps for fusions, muffles for incinerations, tables for glass working, and much minor apparatus.

For work in Agricultural Chemistry an entire room is set aside. This room is fitted with gas, water and electricity, condensers for distilled water, batteries, extraction apparatus for fats, nitrometers, Kjeldahl apparatus, hot water filtering apparatus, grinders for fodders, steam and air baths, calorimeter, polariscope, Westphal and analytical balances, coarse balance for rough work, hot-plates, and minor apparatus. This is one of the strongest divisions in the department and is lacking in nothing that makes a fully equipped agricultural chemical laboratory.

Bacteriology. The laboratories in general and advanced Bacteriology are completely equipped for work in this science. Apartment, glass-topped desks, individual wall lockers, cylindrical and square copper sterilizers supplied with steam from the main heating plant, small and large hot air sterilizers, a small and a large steam pressure sterilizer, the latter measuring 14x22 inches inside chamber, and arranged for "dry steam" sterilization, are conveniently arranged in the general laboratory for the larger sections. Small incubators are used by the advanced students, while a large incubator room, with gas connections, is within easy access to both general and advanced laboratories. Lead-top tables with convenient drawers furnish ample working space. Hot and cold water is supplied to a large 12-foot enameled sink, fed by the main water system and by a 40-gallon hot water tank. Each desk and locker is equipped with a complete outfit of microscopes and accessories for high power work. There is a complete collection of common and precision glassware; and all the other necessary minor equipment for work in bacteriology is at the disposal of elementary and advanced students.

Botany and Plant Pathology. This department is located on the fourth floor of the new Agricultural Hall and occupies a suite of six rooms including office, herbarium room, culture room, general student laboratory, advanced student laboratory and Experiment Station laboratory for research in Plant Pathology. The rooms of the department are supplied with new furniture. The general student laboratory is provided with ten large student tables, each of which will accommodate four students. Individual drawers are provided in each desk to accommodate seven sections or a total of two hundred eighty students. Compound and dissecting microscopes are provided for each student. The advanced laboratory is provided with six similar tables, and in addition provision is made for experimentation in Plant Physiology.

The research laboratory in Plant Pathology will also serve as an instructor's preparation room for certain of the material used in advanced classes in Histology and Morphology, etc. This laboratory is equipped with a modern autoclave, Arnold sterilizers, electrically heated incubator and paraffin ovens, various types of microtomes and the other usual equipment of a modern laboratory of Plant Pathology.

The Phanerogamic herbarium of several thousand mounted and many thousand unmounted plants is particularly rich in Oregon forms, while containing quite extensive collections of the New Mexico, California, Michigan, Washington, and Alaska floras. The herbarium is being rapidly enlarged by exchange, particular attention is being given to the accumulation of economic material including the forest and shade trees of North America, agricultural plants of the world, pharmaceutical plants, weeds and grasses of economic importance. Large and miscellaneous collections of the various groups of cryptogamic plants are being assembled. Particular attention is being given to the collection of parasitic fungi for use in the work in Plant Pathology. A private collection of about five thousand specimens of fungi particularly rich in parasitic forms has been temporarily loaned by H. S. Jackson for the use of students and instructors.

A large amount of class study material is preserved in alcohol for the use of classes. A well selected collection of microscopic slides, photographs, and lantern slides is provided and is being rapidly enlarged. The equipment for Plant Physiological work includes all the essential apparatus for a modern laboratory course.

Physics. The physical laboratory has a good working equipment for the study of general physics, the apparatus being such as to allow a qualitative or quantitative verification of all of the important laws by the student. In addition to the equipment of the general laboratory, there are many pieces of apparatus intended mainly for class room demonstration. Instruments are also available for the usual work in electrical measurements and the standardizing of electrical instruments.

Art and Architecture. This department occupies three commodious, well-lighted class studios on the third floor of the new Agricultural Hall. These rooms have north light, are perfectly heated and ventilated, and are well furnished with studio furniture; such as easels, drawing tables, portfolio racks and similar accessories. The class studios are equipped with cast forms for models; the collection is quite extensive and consists of casts of geometric figures and a carefully selected assortment of block-casts of hands, feet and heads; casts of architectural pieces, fruit, foliage, flowers, heads, masks, arms, hands and feet; and a number of full figure pieces in full and bas-relief. There is also a good collection of still life objects and draperies for light and shade, pen, ink, and color study. The room known as the Tower Room in Agricultural Hall is used as a studio drafting room for architectural students. It is supplied with tables and drawing-boards, and there are numerous casts for work in pen, pencil and water-color rendering.

The College Library has a well-selected and growing Architectural Reserve, which is sufficient to meet the needs of the department. The course in the History of Architecture is augmented by several hundred slides of architectural subjects.

The Library occupies three-fourths of the second floor of the

Administration Building. The reading and general reference room is large, well lighted, and extends entirely across the building, and is supplied with about two hundred leading magazines and newspapers. Through the courtesy of the editors, a large number of farm, orchard, stock, and home journals and county newspapers of Oregon are received regularly at the reading room. The book stacks, occupying adjacent rooms, contain about eight thousand volumes of standard works of history, biography, engineering, agriculture, natural science, general literature and reference, and about 1,500 reports and other publications from the Agricultural Colleges and Experiment Stations of all the States, and ten thousand bulletins and pamphlets. The library is a designated depository of United States Government publications, of which it has about six thousand volumes. Over two thousand of these were received as a gift from the library of the late United States Senator Dolph.

Practical use of the books has led to the establishment of small reference libraries kept in the rooms of the following departments: General Chemistry, Agricultural Chemistry, Animal Husbandry, Agronomy, Horticulture, Botany and Forestry, Bacteriology, Zoology, Pharmacy, Civil, Mechanical, Electrical and Mining Engineering. Each department library is in charge of the head of that department, to whom application must be made for the use of the books.

All books are classified and catalogued according to the Dewey decimal system. Books may be drawn for home use by all officers and students of the College. Books may be kept by the students for two weeks with the privilege of renewal and by officers for any reasonable time. All students have free access to the shelves of the reference library in the reading room, but apply at the delivery desk for other works which they may desire.

The reference library consists of encyclopedias, dictionaries and standard reference books in the different departments of study, together with books designated by professors for collateral reading in the various courses of instruction. A small collection of books for cultural reading is also kept in the reading room. In the same room and accessible to all readers is the card catalogue of the general library, including the books of the department libraries. The catalogue is one of authors and subjects under one alphabet on the dictionary plan. There is also a card catalogue of the publications of the U. S. Department of Agriculture, and a card index to the publications of the State Experiment Station.

The Gymnasium is equipped with lockers and dressing rooms with accommodations for a thousand men. In the shower-bath room, hot and cold water is available throughout the year. The floor of the gymnasium is surmounted by a balcony running-track, and a splendid playing space is provided for basketball and other indoor games.

The equipment includes horizontal bars, vaulting horses and bucks, parallel bars, swinging rings, dumb bells, Indian clubs, wands and chest weights. For those interested in combative sports, a wrestling mat is provided. The athletic field adjoining the gymnasium has within its bounds a quarter mile running-track, football gridiron and baseball diamond. Bleachers and grandstand accommodate the spectators.

Directly opposite the gymnasium is located the new Armory with a dirt floor over one hundred yards long and fifty yards wide. The dirt running track in the Armory is an eighth of a mile long. These facilities afford opportunities for all of the athletic teams to train every day in the year. There are galleries for the spectators and at indoor winter meets, 2,000 spectators can be easily accommodated. The regular gymnasium classes are taken to this indoor athletic field for part of their work in physical education.

THE EXPERIMENT STATION.

The Station bears an important relation to the College, as the scientific investigations conducted at the Station strongly support the instruction given in the class room. Aside from the original investigations of economic significance to agriculture, the work of the Station affords daily object lessons in modern farm methods.

About one hundred and fifty acres of land are devoted to the use of Station workers. This land is utilized by the various departments represented in the Station organization, including the departments of Chemistry, Agronomy, Horticulture, Animal Husbandry, Dairy Husbandry, Poultry Husbandry, and Entomology. Each department is actively engaged in the scientific investigation of problems presented by the different branches of agriculture.

As an illustration of the comprehensive character of this work, the following investigations, taken at random from the list of those now being conducted by the Station workers, may be cited. The value of such work, as an object lesson to the students in the various fields of agriculture, can hardly be overestimated. There are experiments with long and short rotation systems for the improvement of soil fertility; tests to ascertain the adaptability and value of alfalfa for soiling and pasture; tests to determine tne adaptability of kale as a winter succulent feed for dairy cows and other stock; experiments in breeding wheat for increase in both quantity and quality of yield, and improvement in adaptation to soil and climatic conditions of the Willamette Valley; experiments in testing the value of irrigation in Western Oregon for general farm crops; tests for comparing the merits of Loganberries and Phenomenal berries; variety tests of strawberries; experiments in cross pollination of apples; co-operative work in the investigation of gummosis of the cherry; a study of the effects of the lime-sulphur spray under varying conditions; investigations of apple tree anthracnose, peach spot, potato blight, and celery leaf blight; a study of machine milking as compared with hand milking; investigations as to the relation of speed, the temperature, and the fat content of milk to the cream produced by hand separators; co-operative investigations with the department of bacteriology relative to the best manner of using "cultures" in butter and cheese making; breeding for egg production; experiments in incubation to discover, if possible, the cause or causes of the great losses in artificial incubation; comparisons between hen-hatching and incubator-hatching; the humidity conditions of natural and artificial methods of incubation; carbonic acid gas as a factor in incubation; feeding experiments to determine the value of various forage crops and cereals for the growing and fattening of hogs; experiments in the feeding of dairy cows; experiments in grazing and fattening swine; investigations in the economical production of beef and mutton.

COLLEGE ORGANIZATIONS.

One of the most important factors in rounding out the results and benefits of a college course is the society, club, or association work. Because of the diverse interests of college life and the varied tastes of the students, the following organizations are maintained by students and faculty:

The Student Body Assembly. This is an organization of the entire student body, working under a constitution and bylaws approved by the faculty, and having general authority over all student enterprises. In order to secure an effective administration of the business coming within its jurisdiction, there are permanent committees on athletics, publications, oratory and debate, and such special committtees as the assembly may by vote determine. Officers are elected yearly, and nominations and elections are conducted in a manner similar to that of the State electorate.

Student Self-Government. A system of student self-government has been established at the College which places the general disciplinary powers of the institution in the hands of the students. The Student Council, an organization made up of thirteen students, seven of whom are seniors, three juniors, two sophomores and one freshman, has been created and vested with such powers as are necessary to enforce such rules and regulations as are adopted by the students.

The Literary Societies. These twelve organizations—Sorosis, Pierian, Feronian, Utopian, Clionian and Adelphae, for women; and Amicitian, Jeffersonian, Philadelphian, Zetagathian, Athenaeum, and Hesperian, for men—have the common purpose of promoting literary work among the students. The weekly literary programs and occasional joint meetings tend to this end. To stimulate interest in debate and oratory, there are held during the year inter-society, inter-collegiate and inter-State contests. Gold medals are presented to the winners in the two latter events, and the successful society in the former receives the "Gatch Cup." This is the silver cup that was presented in 1901 by Dr. Thomas M. Gatch, then President of the College, to the society that had received highest honors in the season's debates. Annually this cup is to go to the successful society in the debates, but it is ultimately to become the property of the society winning it three years in succession. Many and determined have been the battles for its possession, but the cup is still without a permanent home.

The Christian Associations. The religious work of the College is well cared for by the Young Men's and Young Women's

Christian Associations, these organizations being particularly strong. The construction of Shepard Hall, the new student building, has materially increased the scope and added to the effectiveness of the work. The Associations aim to provide a moral atmosphere and pleasant social advantages for the students. Religious meetings are held in the rooms of these organizations every Sunday afternoon, and Bible study classes are regularly conducted. On registration days, committees are on hand to assist students in adjusting their work satisfactorily, and securing comfortable quarters in good homes. Those who wish to make their way through College, will find the employment agencies always ready and glad to assist them as far as possible in procuring positions. For further information concerning these or other matters, address the General Secretary, Y. M. C. A., Corvallis.

The Athletic Association. This organization, maintained by the students through the student body assembly, encourages wholesome competition in the various outdoor and indoor sports and pastimes. It has charge of all details pertaining to the conduct of intercollegiate athletics in which the College may be interested. A committee of the faculty has general supervision over the whole subject of athletics, thus insuring a sound and conservative management.

The Oratorical Association. This body has immediate charge of all business pertaining to the competitive work in oratory and debate. Schedules, dates, prizes, conditions of competition and all similar matters are in its care.

The Dramatic Club. This club was organized for the purpose of offering special training in elocution and dramatic art. Membership is open to all students who desire to pursue work in these fields. Platform exhibitions will be given and standard plays presented during the College year.

The Sphinx. This is the senior honor society. Membership is acquired by election based on prominence in student activities and scholastic excellence.

The International Club. This is an organization of foreign and American students. It is a local chapter of the Association of Cosmopolitan Clubs of the World. Its purpose is to provide social and educational advantages for its members and to promote international friendship. At present, nine nations are represented in the local chapter.

The Camera Club. The aim of this organization is the advancement of "camera craft." The regular discussions cover topics pertaining to lenses, cameras, camera outfits, plates, films, printing papers, negatives, lantern-slides, transparencies, and general technique, photographs for scientific purposes, photographic illustration, and demonstrations of material and processes.

Vorwaerts. This is the German club, membership in which is restricted to students in second-year or advanced German. Its object is to familiarize its members with the use of German, especially in conversation. To this end, all conversation in the regular weekly meetings is carried on in this language, and programs consisting of German plays, songs, readings, and the like are features of the club's work.

The Agricultural Club. This club was established for the purpose of advancing interest in the various phases of agriculture, and promoting the investigation and discussion of both general and special agriculural subjects. Suitable programs are prepared for each meeting, and whenever practicable, leading authorities on practical agriculture are engaged to address the members.

The Lewelling Club. This is the Horticultural Club conducted under the auspices of the Horticultural Department. There is no regular organization, except an executive committtee, which has power to transact such business as requires action on the part of the club. It is open to all students interested in horticulture.

Delta Theta Sigma. There is established at this College a local chapter of this national honorary agricultural fraternity. The aim of the society is to advance the study of agricultural subjects by giving honorable recognition to students taking the lead in the work. Elections to membership are made by the faculty from the junior and senior classes.

The Forest Club. This is an association of students and instructors "formed for the purpose of promoting the forestry interests of the State." In order to carry out its purposes, it meets twice each month for the discussion of current forestry literature, magazine articles, news items, legislation, and general progress movements pertaining to forests, forest service, forest products, forest industries, lumbering, and the lumber trade.

The Civil Engineering Club. This is an organization within the department of Civil Engineering. The active membership is drawn from the junior and senior classes, and the privilege of associate membership is extended to the members of the two lower classes. It meets weekly for the discussion of subjects of interest to the civil engineer.

The Electrical Engineers. This is a College branch of the American Institute of Electrical Engineers. The aim of the organization is to discuss the topics contained in the monthly proceedings of the A. I. E. E., and in this way develop an intimate knowledge of the activities of the national organization, thereby coming into closer touch with the practical problems in the engineering world and becoming better fitted for their life work.

The Miners' Association. This body has for its object the discussion of technical engineering subjects.; the review of current mining literature; the presentation of original papers by the active members; and occasional lectures on special mining topics by men outside of the College.

Mechanical Engineers. This is a College branch of the American Society of Mechanical Engineers. The purpose of the association is to keep in touch with the practical problems of the engineering world.

The Margaret Snell Club. This is an organization for the purpose of bringing the girls of the Domestic Science and Art course into closer touch with each other and with the problems concerning their work. The meetings are devoted to the discussion of various questions in Domestic Science and Art, and to the presentation of lectures by authorities on these subjects.

The Commercial Club. This is a student organization within the School of Commerce. The purpose of the club is to bring its members into close relation with current methods and events in the commercial world. This is accomplished by discussions of topics pertaining to commerce by members of the club, and by addresses at various times during the year by men prominent in the fields of law and business. Active membership is open to the juniors and seniors of the school, and associate membership may be enjoyed by the underclassmen.

Science Club. This club is an association of faculty members and students who are interested in scientific work. It meets once a month for the purpose of discussing scientific subjects. Membership is open to all students taking work in the sciences.

The Pharmaceutical Association. The main purpose of this organization, which consists of the pharmacy students, is to bring its members into close relation with the current events of the pharmaceutical world. This is brought about by discussions in the meetings of topics pertaining to pharmacy, and by addresses at various times during the year by prominent pharmacists and salesmen of the State.

COLLEGE PUBLICATIONS.

Two classes of publications are issued from the College; one, official, published by the College authorities; the other, unofficial, and published by the various student organizations.

The College publications include:

The Catalogue. Published at the close of the College year and containing much general and specific information as to the courses of study, equipment and instruction.

The Bulletins of the Summer School. These announcements contain specific information of expenses, courses of instruction, character of the work presented, and the requirements that prospective students must meet.

The Bulletins of the Winter School. These announcements carry such information regarding the Winter courses as may fully present the advantages of these courses to the public.

The Department Circulars. These contain specific and technical information, relating to the courses of study, departmental instruction, and those features of particular interest that appeal to the specialist along the several lines of industry represented by the various departments of the College.

The Station Bulletins. A series of special reports upon experimental investigations in agronomy, horticulture, dairying, animal husbandry, poultry husbandry, insect pests, plant diseases, and special subjects of interest to the husbandman.

The student publications comprise:

The Barometer. In March, 1896, the literary societies of the College began the publication of a monthly periodical, the "O. A. C. Barometer." The enterprise has met with deserved success, and "the organ of the student body" is now issued as a four-page, five-column semi-weekly. It publishes the "news of the College," literary and scientific articles, and is of general public importance as representing the interests, character and accomplishments of the student body of the College.

The Orange. This is the annual publication of the junior class, and made its initial appearance in 1907. It is a high-class publication, bound in flexible leather, and fully illustrated with photo-engravings, pen and ink sketches, line and wash drawings. It is a compendium of college life as seen by the juniors, brimful of wit, humor, sarcasm, sentiment and good will.

The Oregon Countryman. This is a monthly magazine published by the Agricultural and Domestic Science and Art students under the supervision of the faculties of these courses. Besides dealing with the work of the various departments in a practical manner, it contains articles of scientific value contributed by the Experiment Station workers. Successful men and women of the State contribute articles for each issue.

The Student Engineer. This is a magazine devoted to engineering and the mechanic arts. Its purposes are to record the engineering progress in the Northwest; to furnish news; to discuss methods relating to the mechanic arts; to publish records of scientific work done by the students in this institution; and to publish any matter of special technical and scientific interest. Items of interest will be found for civil, mining, mechanical, and electrical engineers, and for others who are engaged in technical pursuits. The journal is under the supervision of the faculty of the School of Engineering and Mechanic Arts, but the work and responsibilities of the publication are borne by the staff, elected by the students of the School of Engineering.

STUDENT EXPENSES.

FEES.

Tuition is free. The regular College fees required of all students, with the exception of special students in Music, are as follows:

Entrance fee, payable annually on registration	$5.00
Diploma fee on graduation	5.00
Incidental (Student) fee, payable each semester	2.00
Entrance fee for Winter Short Courses	1.00

Students are charged small fees in the different laboratory courses to cover the cost of material used; and deposits are required to cover cost of breakage in laboratory courses where breakages are likely to occur. These fees are payable at the beginning of each semester. At the end of the semester deduction is made for actual breakage and the balance of the deposit is refunded to the student. The fees and deposits charged each semester in the different courses are as follows:

FEES AND DEPOSITS.

1911-1912.

	Fees	Deposits
Agronomy:		
Course C	$ .25	
Courses 3, 6, 10, 13	.50	
Courses 5, 12	1.00	2.00
Course 9	1.00	
Course 15	1.00	3.00
Bacteriology:		
First semester	No fees	
Second semester	.50	1.00
Botany:		
Courses A, B	.50	
Courses 1, 2, 3, 4, 5, 8, 9, 10, 11, 12, 16, 17, 18	1.00	
Courses 6, 7	2.50	
Course 15	.50	
Business Administration:		
Courses 1, 2, 3, 4	1.00	
Chemistry:		
Courses 5, 7, 8, 12, 13, 14, 15, 17, 18	3.00	2.00
Courses 1, 2, 3	3.00	1.50
Course 4	3.00	1.50
Course 6	3.00	1.50
Courses 10, 11	4.00	1.00
Dairy Husbandry:		
Courses A, 1	1.00	2.00
Courses B, 2, 3, 8, 10	1.00	
Course 11 (Special Winter Course)	3.00	2.00

Domestic Science:		
Courses E, F, 3, 8, 15, 16	.50	
Course 6	1.00	
Courses 19, 20	1.50	
Courses 12, 13	2.00	
Courses A, B, C, D, G, H, 1, 2, 7	3.00	
Courses 4, 5, 10, 14	3.50	
Domestic Art:		
Courses A, B, C, D, 1, 2, 5, 6, 13, 14, 15, 17	.50	
Courses 3, 4, 16	.75	
Course 18, E, F	1.00	
Courses 7, 8, 9, 10	2.00	
Courses 11, 12	3.00	
Drawing:		
All courses in Freehand Drawing	.50	
Engineering:		
Civil—Courses 1, 2, 3, 4, 5, 7	1.00	
Electrical—All laboratory courses	2.50	5.00
Experimental Engineering—Courses 1 , 2, 3, 4, 5, 21	2.00	
Courses 11, 16, 26	1.00	
Mining—Course 7	10.00	
Forestry:		
Courses 11, 12	1.50	
Summer Camp	5.00	
Geology:		
Courses 3, 4, 6, 8	1.00	
Courses 1, 2	3.00	
Horticulture:		
Course 1	1.00	
Course 11	2.50	
Pharmacy:		
Courses 6, 7, 11	5.00	1.00
Physics:		
Courses A, B, 7, 8	.75	
Courses 3, 4, 5, 6, 9	1.50	
Courses 1, 2	1.25	
Courses 11, 12		2.00
Physical Education:		
All courses	1.50	

(All students using Gymnasium pay a fee of $1.50 per semester for which they are given use of all equipment, baths, and are furnished with towels, soap, and medical supplies for injuries.)

Shopwork:		
Courses A, B, C, D, E, F, H, I, O, P, and 9, 10, 12, 13, 14, 15	3.00	2.00
Courses J, K	5.00	
Courses L, 7	2.00	
Courses 5, 6, 8, 16	3.00	
Courses 1, 2, 3, 4, 11, and G	2.00	2.00
Stenography:		
Courses 1, 2, 3, 4, 5, 6, 7, 8	2.00	
Zoology, Entomology, and Physiology:		
Courses 1, 2, 3, 4, 5, 6	1.00	
Mechanic Arts (Winter Course):		
Woodwork	3.00	
Blacksmithing	3.00	

BOARD AND ROOM.

Board and room accommodations may be had either in private family or in the College dormitories.

Women's Dormitory. Waldo Hall, with its large, airy parlors, halls, music and play rooms, is a pleasant residence for the young women who come from distant homes. The building is supplied throughout with pure mountain water, hot and cold in each room, electric lights, steam heat and all modern conveniences. The rooms are furnished with an iron bedstead, a mattress, a chiffonier, a table, and chairs. Such other materials as are needed to make the furnishings complete, including pillows, pillow cases, sheets, blankets, bed spread, are furnished by the student; and many of the students prefer to make the rooms more homelike by bringing rugs, curtains, pictures, sofa cushions, etc. These latter articles, however, are not at all necessary. The rooms are cheerful and comfortable without additional furniture. The bed rooms average about 12 feet by 15 feet, with one window 3 feet by 7 feet. Many of the rooms are larger, and a few of them have two windows. Each student also furnishes her own towels and table napkins. Students who room together may choose to have a double bed or two single ones. Their preference st be indicated with application for a room. No definite omise for a single room can be made, the privilege of roomg alone depending upon the number of applications for oms. The many advantages of having a room-mate should t be overlooked by the student in making her plans for llege life.

The conditions of living in Waldo Hall are such that the llege considers it a distinct advantage to the women students live in the dormitory. A wholesome, busy, student atmosere is maintained. Reasonable freedom is allowed, but eek nights are reserved for study. All girls entering the llege are expected to live in the dormitory unless their rents reside in the city, or they are given special permison to live with relatives or friends who assume the responbility of their care.

The expenses of living, for each student, in Waldo Hall are follows:

om deposit	$ 3.00
oom rent per semester—	
Single room	10.00
Double room	5.00
oard per week, payable monthly in advance	3.50
cidentals, as laundry fee, electric iron fee, etc,, per semester	2.00

Students who are planning to enter the School of Domestic cience and Art, or to live in Waldo Hall, are asked to write r special circulars giving more detailed information than will e found in the Catalogue.

Waldo Hall will be open for students September 21, 1911.

Students who wish to arrive in Corvallis previous to the pening day should make arrangements to board and lodge in wn until the morning of that date when the Hall will be pened to receive them.

Men's Dormitory. Cauthorn Hall, as a home for young men hile in College, offers many inducements. There is room for bout one hundred students. Accommodations in this Hall re similar to those described for the Women's Dormitory, ach room being furnished with iron bedstead, mattresses, chifonier, table, and chairs. Students furnish bed clothing and ther articles as desired. The Hall is conducted on the club lan, all business connected with the management of the club being in the immediate charge of a Manager, and Steward elected by the members of the organization. This plan has proved to be very popular and successful, so much so, that more than twice as many students have been turned away than it was possible for the Hall to accommodate. The building, though having been in use for many years, is yet very substantial and, with the late improvements, is very comfortable. It is heated with steam heat, has hot and cold water on every floor, with all modern lavatory conveniences. The club rents the building from the College at the rate of $5.00 per student per semester. The club purchases all the supplies in as large quantities as possible, and at the best possible advantage. The club also pays for all heating, lighting, and water supply. Each person pays his portion of the actual cost of living, which may be varied from time to time as the club wishes. The actual cost of living for the past year, including all expenses, is about $16.85 per calendar month, or $3.90 per week. Not only does the Hall afford a very comfortable home for young men while in College at minimum cost, but it is a place where friendships are formed which are never forgotten in after years.

Private Board. Board and room may be secured in private family in the city of Corvallis for from $3.50 to $4.50 per week. Good accommodations for self-boarding, or for club-boarding, can also be secured in the city. By clubbing, or renting rooms and boarding themselves, students materially reduce the cost of living. Students, however, will not be permitted to live at places not approved by the Faculty.

PERSONAL EXPENSES.

The personal expenses of students vary. Many students are able to go through the College year on a comparatively small amount. Books, including drawing instruments, will amount to between $10 and $25 per year. Each male student, immediately upon registration, is required to supply himself with military uniform, the cost of which will be approximately as follows: suit and cap, $15; tan shoes, $3.25; leggings, $1; gloves, 25c per pair; total, $19.50. The uniform is very serviceable and is more economical than civilian clothing. Women pursuing work in physical culture are required to provide themselves with a gymnasium suit, consisting of blouse-waist and bloomers, with the regulation gymnasium shoes; the cost of the suit will be about $3.50. This suit should be serviceable for a number of years. The students in Domestic Science work provide themselves with cookery costume, consisting of dull blue dress, with white cap and apron. Students may make their own costumes, under the direction of the instructors in Domestic Art. The material will cost approximately $5.00.

SELF-SUPPORT.

Each year a number of students can earn part or all of their expenses. The College employs a number of students in janitorial, farm, orchard, campus, laboratory, and clerical work. The two Christian Associations, the Y. M. C. A. and the Y. W. C. A., conduct an employment bureau; and, with the assistance of the College officials, do everything possible to help worthy students in the matter of securing employment. The policy of the College is to reduce all necessary expenses to the minimum, and in this way to aid those whose means are limited. In this respect the conditions are favorable; but it is advised that persons entering the institution have definite resources sufficient to meet their expenses for a time at least, Students who desire to file their application for employment should write to the Secretary of the Y. M. C. A., care of the Oregon Agricultural College.

STUDENT LOAN FUND.

Through the liberality of friends of the Oregon Agricultural College, a number of irreducible student loan funds have been established. The purpose, as expressed by one of the donors, is "not to induce students to attend school by providing money that can be easily obtained, but rather to aid those who have determined to secure an education and are paying the cost wholly or in part from their own earnings."

The funds so far provided are:

1. The R. A. Booth Fund of Five Hundred Dollars, established by Senator R. A. Booth of Eugene. This loan fund is restricted to those studying

   a. Agriculture in its various phases, with a view to becoming producers from the soil.

b. Such branches of Mechanics as properly relate to Agriculture.

c. Domestic Science.

2. The Ashby Pierce Fund of Five Hundred Dollars, restricted to students in the Mechanical and Agricultural courses.

3. A Fund of Fifty Dollars established by the Philadelphian and Feronian Literary Societies of this institution.

4. A Fund of Ten Dollars established by Portland, Oregon, Chapter A., P. E. O.

Great care is exercised in granting the loans. The student's character, standing, personal habits, and associations must be above reproach to enable him to become a beneficiary of this Fund. As a rule, the loans are secured and bear a reasonable rate of interest.

CONDITIONS OF ADMISSION

SECONDARY COURSES.

To enter these courses, applicants must have completed the ork required in the eighth grade of the public schools. These urses are established for the benefit of persons who desire dustrial training; and no students will be admitted to them cept those who live in parts of the State where no prosion is made in the public schools for industrial work. The inimum age of those entering the Secondary courses in Agrilture, Forestry, Mechanic Arts, Domestic Science and Art, d Commerce; and the special winter courses in Agriculture, echanic Arts, and Domestic Science and Art, is fifteen ars. Those entering as special students must be at least ghteen years of age.

Good moral character is a requisite for admission. Students om other colleges or universities are required to furnish om those institutions certificates of honorable dismissal.

DEGREE COURSES.

For admission to the freshman class in any course in the llege, the applicant must be at least sixteen years of age and ust have completed all the subjects prescribed in the first d second years of the Oregon State high school course, or eir equivalent. Applicants who have not completed Plane eometry and Drawing will be given an opportunity to make such deficiency during their freshman year. Students tering the freshman class in any of the Engineering courses ust have completed Solid Geometry. Applicants deficient in is subject must take Mathematics F during the first semester the freshman year.

The following credits are entrance requirements for adission to the freshman year: English 2, Algebra 1½, Plane eometry 1, Drawing ½, Electives 4. A credit represents the ork of thirty-six weeks with five recitations a week and rty-five minutes to the recitation. Certificates from accreded high schools and academies will be accepted in lieu of aminations. Students who have completed any of the Secdary industrial courses offered by the College may be aditted without examination to the corresponding degree urses.

LIST OF ACCREDITED SCHOOLS.

High Schools.

- Albany
- Ashland
- Astoria
- Athena
- Baker City
- Ballston
- Bandon
- Bay City
- Bend
- Bonanza
- Brownsville
- Burns (County)
- Canyon City
- Central Point
- Coburg
- Condon
- Coquille
- Corvallis
- Cottage Grove
- Cove
- Creswell
- Crook (County)
- Dayton
- Drain
- Echo
- Elgin
- Enterprise (County)
- Eugene
- Falls City
- Forest Grove
- Fossil
- Frankton
- Grants Pass
- Grass Valley
- Gresham (District 4)
- Haines
- Halsey
- Harney (County)
- Harrisburg
- Heppner
- Hermiston
- Hillsboro
- Hood River (District 2)
- Hood River (District 3)
- Independence
- Ione
- Irrigon
- Island City
- Jacksonville
- Jefferson
- Junction City
- Klamath Falls (County)
- Lafayette
- LaGrande
- Lakeview
- Lebanon
- Lexington
- Lostine
- Marshfield
- McMinnville
- Medford
- Monmouth
- Muddy Creek
- Myrtle Creek
- Myrtle Point
- Nehalem
- Newberg
- North Bend
- North Powder
- Nyssa
- Ontario
- Oregon City
- Parkplace
- Pendleton
- Portland
- Prineville (County)

Roseburg
Salem
Scio
Seaside
Sheridan
Silverton
Springfield
St. Helens
St. Johns
Sumpter
The Dalles
Tillamook
Toledo
Union
Wallowa (County)
Wasco
Weston
Wheeler
Woodburn

Academies.

Allen Preparatory School
Hill Military Academy
Pendleton Academy
Portland Academy
St. Helen's Hall
Tualatin Academy

ENTRANCE REQUIREMENTS.

English.

The examinations in freshman English will include questions in grammar and elementary rhetoric, based on the work in English as given in the tenth grade of an Oregon High School; and, in addition, one or more essays, to test the student's readiness and accuracy of expression.

One of the essays, to be written at the examination, will be on some theme connected with one or more of the books in the following list:

Burke's "Speech on Conciliation with America"
Shakespeare's "Julius Caesar"
Shakespeare's "Merchant of Venice"
Macaulay's "Essay on Addison"
Macaulay's "Essay on Johnson"
George Eliot's "Silas Marner"
Coleridge's "The Ancient Mariner"
Carlyle's "Essay on Burns"

In every case, knowledge of the book will be regarded as less important than the ability to write good English.

The other test in composition will consist of the writing of two paragraphs of about one hundred and fifty words each on some familiar topics, to test the applicant's ability to use the English language. These topics will be chosen by the candidate from a considerable number, perhaps six or eight, set before him in the examination paper. There should be correct spelling, capitalization, punctuation and paragraphing. Applicants notably deficient in any of these fundamentals cannot be accepted.

Read three or more books from the following list for 1912:

Irving's "Life of Goldsmith"
Dickens' "A Tale of Two Cities"
Goldsmith's "The Vicar of Wakefield"
Bunyan's "The Pilgrim's Progress"
Emerson's "Essays" (selections)
Hawthorne's "The House of Seven Gables"
Thackeray's "Henry Esmond"
Ruskin's "Sesame and Lilies"
Burroughs' "Essays" (selections)

Candidates presenting exercise books containing compositions or other written work properly certified to by the instructor, will be given credit for such work.

Mathematics.

For entrance into the freshman year, a thorough working knowledge of the following topics in Algebra is required: addition, subtraction, multiplication and division of positive and negative numbers, use of parentheses, factoring, highest common factor, lowest common multiple, fractions, fractional and literal equations, simultaneous equations, problems involving linear equations with one or more unknown numbers, graphical representation of simultaneous linear and quadratic equations, involution, evolution, theory of exponents, radical expressions, imaginary numbers, quadratic equations, problems involving quadratic equations with one unknown number, equations in the quadratic form, factoring of quadratic equations, solution of quadratic equations by factoring, simultaneous quadratic equations, problems involving simultaneous quadratic equations with two unknown numbers.

The requirements in Plane Geometry are the five books of Wentworth's Plane Geometry, or of any other standard text on the subject. That the student may be trained to think for himself, and not be dependent upon the published proofs of the text, much importance is placed upon the proving of original exercises. It is strongly advised that students preparing for entrance examination in Geometry, devote considerable time to the study of original exercises.

Drawing.

Students having one-half credit in drawing will be admitted to the freshman year without condition, as stated under Entrance Requirements. All others will be required to take Drawing A and B or C.

ADVANCED STANDING.

Certificates of work completed in other institutions of recognized standing may be received in lieu of examinations for advanced standing, to the extent that such work is equivalent to the corresponding work required in the College courses.

SPECIAL STUDENTS.

Persons of the required age may be admitted as special students, provided they give satisfactory evidence of proper preparation for the studies desired, and have not already been admitted to the College, nor, having applied for admission, been rejected. Special students may be allowed to graduate in any of the courses on condition that they complete the required work and pass the necessary examinations.

IRREGULAR STUDENTS.

Applicants who meet all the entrance requirements may be admitted as irregular students, upon presenting satisfactory evidence that they are unable, because of poor health, or outside business or professional duties, to take a full course.

REGISTRATION.

All candidates for admission must present themselves for registration at the College on September 22 and 23, 1911. Registration at a later date will be permitted only on the presentation of a satisfactory reason for the delay. Students in all courses register at the beginning of the collegiate year for the work of the entire year. Credit for work not so registered, and changes in registration, will be allowed only by special permission of the College Council.

GRADUATION.

The degrees of Bachelor of Science in Agriculture, in Forestry, in Domestic Science and Art, in Civil Engineering, in Electrical Engineering, in Mechanical Engineering, in Mining Engineering, in Commerce, and in Pharmacy, are conferred upon those who have satisfactorily completed the respective four-year courses. A graduate in any of the courses may receive the bachelor's degree in any other course by completing the studies required in that course.

Advanced degrees are conferred upon graduates of this College, or other colleges and universities of approved standard, as follows: (1) Civil Engineer (C. E.), Electrical Engineer (E. E.), Mechanical Engineer (M. E.), and Mining Engineer (E. M.), upon those who have satisfactorily completed one year's graduate work in the respective engineering courses; (2) the degree of Master of Science (M. S.) in Agriculture, in Domestic Science and Art, in Civil Engineering, in Electrical Engineering, in Mechanical Engineering, and in Mining Engineering, upon those who satisfactorily complete two years' graduate work in the respective courses, at least one of which shall be in residence at the College; and who prepare a thesis, based upon original research, which shall show scholarly acquirements of a high order.

COURSES OF STUDY

The Oregon Agricultural College offers the following courses of study, each of which extends over four years, and leads to the degree of Bachelor of Science: **I. Agriculture,** leading to degree courses in (a) Agronomy, (b) Animal Husbandry, (c) Dairy Husbandry, (d) Horticulture, (e) Poultry Husbandry, (f) Agricultural Chemistry, (g) Bacteriology, (h) Plant Pathology, (i) Entomology; **II. Forestry; III. Domestic Science and Art; IV. Engineering,** leading to degree courses in (a) Civil Engineering, (b) Electrical Engineering, (c) Mechanical Engineering, (d) Mining Engineering; **V. Commerce; VI. Pharmacy.**

In addition to the above courses, provision has been made for the following secondary courses: Two-year courses in Agriculture, Forestry, Mechanic Arts, Domestic Science and Art, and Commerce.

During the year there are also offered the following short courses: A six-week course in Agronomy, Animal Husbandry, Horticulture, Dairying, Forest Rangers, Domestic Science and Art; Farmers' Week; and a six-week Summer School for teachers.

COURSES IN AGRICULTURE.

The School of Agriculture offers a two-year course in secondary Agriculture; nine four-year courses, each of which leads to the degree of Bachelor of Science; a six-week Winter course in Agronomy; a six-week Winter course in Animal Husbandry; a six-week Winter course in Dairying; a six week Winter course in Horticulture; and a Farmers' Week.

The two-Year Course is provided especially for those who have no opportunity to pursue their public school course beyond the eighth grade, or who from necessity or choice desire, upon completing the work of this grade, to obtain as quickly as possible a working knowledge of the principles of agricultural science and practice. The technical instruction given during the course includes courses in Agronomy, Animal Husbandry, Horticulture, Dairy Husbandry, Botany, Physiography Business Administration, Drawing, Woodwork, and Blacksmithing. Courses in English, Mathematics, and History are provided so that students who finish these subjects and who so desire, will be fully prepared to enter upon the degree courses.

The Degree Courses. Students who have completed any of the secondary courses at this institution may register in the degree courses without conditions. Those who have completed the second year of the Oregon High School course are entitled to register as freshmen. (See "Conditions of Admission.") Graduates of a four-year high school course will ordinarily be able to finish this course in three years.

The various subjects of instruction may be conveniently arranged into three groups, each of which requires approximately one-third of the student's time: (a) Sciences related to Agriculture, i. e., Botany, Zoology, and Entomology, Chemistry Physics, and Bacteriology; (b) Technical Agricultural subjects, i. e., Agronomy, Animal Husbandry, Dairy Husbandry Horticulture, Poultry Husbandry, and Veterinary Science; (c) non-technical subjects, i. e., English Language and Literature, Mathematics, History, Economics, Modern Languages, Drawing and similar subjects.

The subjects of the first group are designed to furnish the student with an insight into the principles of agricultural science. In the second group he learns of the application of these principles and also studies, both theoretically and practically, various subjects of agricultural technology. The subjects of the third group tend further to develop the student's intellect, broaden his view, and train him in good citizenship.

To indicate briefly the nature of the work, it may be stated that in the courses in Agronomy, the student studies the origin, structure, fertility, cultivation and improvement of various soils; the history, growth, culture, improvement and value of the different field crops; the structures, machinery, drainage, and irrigation of the farm; and the history economics, methods, and business principles of farm management. There is also a thorough course in Business Administration, which will be given by the School of Commerce. In the course in Animal Husbandry, consideration is given to the history and characteristics of the various breeds of livestock; the principles of breeding; the principles and practice of feeding with particular reference to conditions in this State.

By constant practice in stock judging, the student is made familiar with the good points of the various breeds. In Horticulture the student studies the problems of the orchard and garden, such as choice of site, soils, planting, pruning, choice of varieties, sprays and spraying, and thinning; he obtains instruction and practice in the propagation of plants by various methods; in the harvesting, packing, storage and marketing of fruits; he may study the principles of plant breeding or the construction and management of greenhouses or the culture of small fruits and vegetables for market or canning purposes. In Dairy Husbandry he studies the secretion, composition, and separation of milk and cream; and obtains abundant practice in the use of Babcock and other tests, in butter and cheese making, and in creamery practice. A Department of Poultry Husbandry has recently been organized, and now offers to students exceptional opportunities to specialize in this line. The instruction will include a study of breeds, the principles of feeding, housing and incubation, and will be supplemented by practical work on the farm. In Veterinary Science the student is taught to prevent disease, diagnose existing pathological conditions, arrest outbreaks of contagious and infectious diseases among domestic animals, give medical attention in emergency cases, and take care of the sick.

The aim of the two and four-year courses is to train young men to become successful farmers, stock-men and fruit growers; to prepare them to become specialists in some branch of agricultural college or experiment station work; to fit them to become teachers of agriculture in the public schools. In short, they offer to those who have faith in the farm and in rural life, opportunities for intellectual development and technical training equal to those provided for the educated in other professions.

The Six-Week Winter Courses. The six-week Winter courses are designed for special purposes, and it is the aim in each to furnish the greatest amount of special information in the least possible time. They are provided especially for those who desire technical information in some particular phase of agriculture, but have not the time nor the opportunity to pursue any of the degree courses.

SECONDARY COURSE IN AGRICULTURE.

First Year.

	Semesters 1st.	Semesters 2nd.
Advanced Grammar I., II. (English A, B)	3	3
Classics I., II. (English C, D)	2	2
Algebra I., II. (Mathematics A, B)	5	5
Ancient History (History A)	3	
Mediaeval and Modern History (History B)		3
Drawing I., II. (Art A, C)	2	2
Soils (Agronomy A)	2	
Crops (Agronomy B)		2
Stock Judging (Animal Husbandry A)	2	
Farm Dairying I. (Dairy Husbandry A)		2
Elementary Orchard Practice (Horticulture A)	2	
Elementary Orchard Practice and Vegetable Gardening (Horticulture B)		2
	21	21

Second Year.

	1st.	2nd.
Rhetoric and Composition I., II. (English E, F)	3	3
Classics III., IV. (English G, H)	2	2
Algebra, Geometry I., II. (Math. C, D, E)	5	5
Business Methods I., II. (Bus. Ad. E, F)	2	2
Farm Dairying II. (Dairy Husbandry B)	2	
Elementary Farm Mechanics (Agronomy C)		2
Veterinary Science (Animal Husbandry B)	2	
Plant Relations (Botany C)		2
Practical Stock Feeding (Animal Husbandry C)		3
Physiography A	3	
Woodwork V. (Shopwork G)		2
Blacksmithing III. (Shopwork L)	2	
	21	21

DEGREE COURSE IN AGRICULTURE.

Freshman Year.

	1st.	2nd.
Rhetoric I., II. (English 1, 2)	3	3
Advanced Classics and Reading I., II. (English 3, 4)	2	2

Trigonometry II. (Mathematics 2)	3	
General Chemistry I. (Chemistry 1)	4	
General Chemistry II. (Chemistry 2)		4
Principles of Botany I., II. (Botany 1, 2)	3	3
Basic Agronomy (Agronomy 1)	3	
Crop Production (Agronomy 2)		2
Stock Judging II. (Animal Husbandry 1)		2
Plant Propagation (Horticulture 1)		2
Woodwork X. (Shopwork 4)	2	
Blacksmithing VI. (Shopwork 7)		2
Library Practice (Library 1)	1	
Hygiene (Physical Education 9)		1
	21	21

Sophomore Year.

General Physics I., II. (Physics 1, 2)	3½	3½
Modern Language I., II. (French, German, Spanish)		
or		
Modern English Prose I., II. (English 12, 13)	3	3
Rural Economics (Political Economy 10)	3	
Agricultural Botany (Botany 5)		3
Zoology I., II. (Zoology 1, 2)	3	3
Agricultural Chemistry I., II. (Chemistry 10, 11)	2½	2½
Orchard and Garden Practice (Horticulture 2)	3	
Drainage and Irrigation (Agronomy 3)		3
Milk and Cream Testing (Dairy Husbandry 1)	2	
Elementary Bacteriology (Bacteriology 1)	1	
Live Stock Management (Animal Husbandry 2)		3
	21	21

Junior Year.

Argumentative Themes, Presentation (Pub. Spk. 1, 2)	1	1
Modern Language III., IV. (French, German, Spanish) or		
Constitutional Law and Politics (Political Science 3)	3	
State and Municipal Government (Political Science 4)		3
Major Electives	7	7

Minor Electices	5	5
Theoretical Instruction I., II. (Mil. Sci. 1, 2)	1	1
	17	17

Senior Year.

Composition of Addresses, Extempore Spk. (Pub. Spk. 3, 4)	2	2
Major Electives	8	8
Minor Electives	6	6
Theoretical Instruction III., IV. (Mil. Sci. 3, 4)	1	1
	17	17

TRANSITIONAL COURSE IN AGRICULTURE.

1911-1912.

Senior Year.

Composition of Addresses, Extempore Spk. (Pub. Spk. 3, 4)	2	2
Modern Language V., VI. (French, German, Spanish)	3	3
Major Electives	6	6
Minor Electives	5	5
Theoretical Instruction III., IV. (Mil. Sci. 3, 4)	1	1
	17	17

As indicated by the outlines above, all candidates for a degree in Agriculture will pursue the same studies during the first two years of the course, in order that each may become well grounded in the fundamentals of agricultural science and practice. During the remaining two years of his course each student will be given an opportunity to become proficient in some one branch of Agriculture by specializing in one of the following groups of studies, viz.: Agronomy, Animal Husbandry, Dairy Husbandry, Poultry Husbandry, Horticulture, Agricultural Chemistry, Agricultural Bacteriology, Plant Pathology, and Entomology. All students working for degrees will be required to carry at least seventeen credits through the junior and senior years. Subjects other than those prescribed in the various groups must be selected with the advice of the head of the Department in which the major is taken. Minors may be selected from any of the above major Departments, or from the Departments of English, Mathematics, Physics, Commerce, or Civil Engineering.

COURSE IN AGRONOMY.

Junior Year.

Argumentative Themes, Presentation, (Pub. Spk. 1, 2)	1	1
Modern Language III., IV. (French, German, Spanish) or		
Constitutional Law and Politics (Pol. Sci. 3)	3	
State and Municipal Government (Pol. Sci. 4)		3
Cereal Crops (Agronomy 5)	5	
Soil Physics (Agronomy 4)		5
Farm Mechanics (Agronomy 8)	3	
Farm Power Machinery (Agronomy 9)		3
Electives	4	4
Theoretical Instruction 1, 2 (Mil. Sci. 1, 2)	1	1
	17	17

Senior Year.

Composition of Addresses, Extempore Spk. (Pub. 3, 4	2	2
Modern Language V., VI. (French, German, Spanish) or		
Commercial Law I., II. (Pol. Sci. 1, 2)	3	3
Soil Fertility (Agronomy 19)	5	
Farm Management (Agronomy 20)		5
Agrostology (Agronomy 17)	5	
Crop Improvement (Agronomy 7)		3
Electives	1	3
Theoretical Instruction III., IV. (Mil. Sci. 3, 4)	1	1
	17	17

Those students who desire to specialize in one of the four main branches of Agronomy—Soils, Crops, Rural Engineering, or Farm Management—may have a special course in any one of these subjects arranged for them by consultation with the head of the Department.

COURSE IN ANIMAL HUSBANDRY.

Junior Year.

Argumentative Themes, Presentation (Pub Spk. 1, 2	1	1
Constitutional Law and Politics (Pol. Sci. 3)	3	
State and Municipal Government (Pol. Sci. 4)		3
Breeds of Stock I., II. (Animal Husbandry 3, 4)	4	4
Live Stock Marketing (Animal Husbandry 5)	3	
Soil Physics (Agronomy 4)		5
Forage Crops (Agronomy 6)	2	
Comparative Anatomy (Veterinary Science 1)	3	
Veterinary Physiology (Veterinary Sci. 2)		3
Theoretical Instruction I., II. (Mil. Sci. 1, 2)	1	1
	17	17

Senior Year.

Composition of Addresses, Extempore Spk. (Pub. Spk. 3, 4)	2	2
Commercial Law I., II. (Pol. Sci. 1, 2)	3	3
Principles and Practice of Comparative Medicine (Vet. Sci. 3)	3	
Surgery (Vet. Sci. 4)		3
Principles of Feeding (Animal Husbandry 8)	2	
Advanced Stock Judging (Animal Husbandry 18)		2
Principles of Breeding (Animal Husbandry 7)	5	
Stock Feeding (Animal Husbandry 9, 10, 11, 12, 13)		5
Seminar I., II. (Animal Husbandry 19, 20)	1	1
Theoretical Instruction (Mil. Sci. 3, 4)	1	1
	17	17

COURSE IN DAIRY HUSBANDRY.

Junior Year.

Argumentative Themes, Presentation (Pub. Spk. 1, 2)	1	1
Modern Language III., IV. (French, German, Spanish) or		
Constitutional Law and Politics (Pol. Sci. 3)	3	
State and Municipal Government (Pol. Sci. 4)		3
Advanced Butter Making (Dairy Hus. 2)	5	

Cheese Making (Dairy Hus. 3)		3
Dairy Chemistry (Chemistry)		3
Electives	7	6
Theroetical Instruction I., II (Mil. Sci. 1, 2)	1	1
	17	17

Senior Year.

Composition of Addresses, Extempore Spk. (Pub. Spk. 3, 4)	2	2
Modern Language III., IV. (French, German, Spanish,)	3	3
Factory Management (Dairy Hus. 5)	3	
Research Work (Dairy Hus. 4)	2	
Technology of Milk (Dairy Hus. 6)		2
Dairy Herd Management (Dairy Hus. 7)		2
Ice Cream and Ices (Dairy Hus. 8)		1
Dairy Bacteriology (Bacteriology 8)	3	
Economic Bacteriology (Bacteriology 9)		3
Electives	3	3
Theoretical Instruction III., IV. (Mil. Sci. 3, 4)	1	1
	17	17

COURSES IN HORTICULTURE.

(a) Pomology.

Junior Year.

Argumentative Themes, Presentation (Pub. Spk. 1, 2)	1	1
Modern Language III., IV. (French, German, Spanish) or		
Constitutional Law and Politics (Pol. Sci. 3)	3	
State and Municipal Government (Pol. Sci. 4)		3
Floriculture (Hort. 3)	2	
Landscape Gardening (Hort. 4)		2
Orchard Practice I. (Hort. 12)	2	
Orchard Practice II. (Hort. 13)		2
Practical Pomology (Hort. 11)	3	
Principles of Entomology (Zoology 8)	3	
Entomology of Orchard and Small Fruits (Zoology 9)		3

Electives	2	5
Theoretical Instruction I., II. (Mil. Sci. 1, 2)	1	1
	17	17

Senior Year.

Composition of Addresses, Extempore Spk. (Pub. Spk. 3, 4)	2	2
Modern Language III., IV. (French, German, Spanish	3	3
Seminar I. (Hort. 20, 21)	1	1
Systematic Pomology (Hort. 18)	3	
Commercial Pomology (Hort. 19)	2	
Principles of Plant Pathology (Botany 8)	3	
Diseases of Trees and Small Fruits (Botany 9)		3
Electives	2	7
Theotretical Instruction III., IV. (Mil. Sci. 3, 4)	1	1
	17	17

(b) Vegetable Gardening.

Junior Year.

Argumentative Themes, Presentation, Pub. Spk. 1, 2)	1	1
Modern Language III., IV. (French, German, Spanish) or		
Constitutional Law and Politics (Pol. Sci. 3)	3	
State and Municipal Government (Pol. Sci. 4)		3
Principles of Vegetable Gardening (Hort. 31)	3	
Practical Vegetable Growing (Hort. 37)		3
Landscape Gardening (Hort. 4)		2
Floriculture (Hort. 3)	2	
Greenhouse Construction (Hort. 51)		3
Principles of Entomology (Zoology 8)	3	
Entomology of Truck and Field Crops (Zoology 10)		3
Electives	5	1
Theoretical Instruction I., II. (Mil. Sci. 1, 2)	1	1
	17	17

Senior Year.

Composition of Addresses, Extempore Spk. (Pub. Spk. 3, 4)	2	2

Modern Language III., IV. (French, German, Spanish)	3	3
Commercial Truck Gardening I. (Hort. 35)	3	
Commercial Truck Gardening II. (Hort. 36)		3
Systematic Olericulture (Hort. 34)	1	
Seminar I., II. (Hort. 20, 21)	1	1
Forcing Vegetables I., II. (Hort. 32, 33)	2	1
Principles of Plant Pathology (Bot. 8)	3	
Diseases of Vegetables and Field Crops (Bot. 10)		3
Electives	1	3
Theoretical Instruction III., IV. (Mil. Sci. 3, 4)	1	1
	17	17

(c) Floriculture.

Junior Year.

Argumentative Themes, Presentation, (Pub. Spk. 1, 2)	1	1
Modern Language III., IV. (French, German, Spanish) or		
Constitutional Law and Politics (Pol. Sci. 3)	3	
State and Municipal Government (Pol. Sci. 4)		3
Annuals and Perennials I., II. (Hort. 41, 42)	3	3
Floriculture (Hort. 3)	2	
Greenhouse Construction (Hort. 51)		3
Landscape Gardening (Hort. 4)		2
Principles of Entomology (Zoology 8)	3	
Entomology of Florist's Crops (Zoology 10)		3
Electives	4	1
Theoretical Instruction I., II. (Mil. Sci. 1, 2)	1	1
	17	17

Senior Year.

Composition of Addresses, Extempore Spk. (Pub. Spk. 3, 4)	2	2
Modern Language III., IV. (French, German, Spanish)	3	3
Forcing Flowers I., II. (Hort. 52, 53)	3	3
Soil Bacteriology (Bacteriology 10)	2	
Forcing Vegetables (Hort. 32)		2
Advanced Plant Breeding (Hort. 24)		3

History and Literature of Horticulture (Hort. 22)	2	
Principles of Plant Pathology (Bot. 8)	3	
Diseases of Trees and Small Fruits (Bot. 10)		3
Electives	1	
Theoretical Instruction III., IV. (Mil. Sci. 3, 4)	1	1
	17	17

(d) Landscape Gardening.

Junior Year.

Argumentative Themes, Presentation, (Pub. Spk. 1, 2)	1	1
Modern Language III., IV. (French, German, Spanish) or		
Constitutional Government and Politics (Pol. Sci. 3)	3	
State and Municipal Government (Pol. Sci. 4)		3
Annuals and Perennials I., II. (Hort. 41, 42)	3	3
Floriculture (Hort. 3)	2	
Landscape Gardening (Hort. 4)		2
Topographical Surveying (Civil Engineering 5)	4	
Principles of Entomology (Zoology 8)	3	
Forest Entomology (Zoology 11)		3
Electives		4
Theoretical Instruction I., II. (Mil. Sci. 1, 2)	1	1
	17	17

Senior Year.

Composition of Addresses, Extempore Spk. (Pub. Spk. 3, 4)	2	2
Modern Language III., IV. (French, German, Spanish)	3	3
Plant Materials I., II. (Hort. 43, 44)	2	2
Theory and Design I., II. (Hort. 45, 46)	3	3
Field Practice (Hort. 47)		2
Dendrology (Forestry 11)	3	
Principles of Plant Pathology (Bot. 8)	3	
Diseases of Forest and Shade Trees (Bot. 11)		3
Electives		1
Theoretical Instruction III., IV. (Mil. Sci. 3, 4)	1	1
	17	17

COURSE IN POULTRY HUSBANDRY.

Junior Year.

Argumentative Themes, Presentation, (Pub. Spk. 1, 2)	1	1
Modern Language III., IV. (French, German, Spanish) or		
Constitutional Law and Politics (Pol. Sci. 3)	3	
State and Municipal Government (Pol. Sci. 4)		3
Poultry Husbandry I., II.	5	5
Zoology 18 (Embryology)	3	
Practical Bacteriology (Bacteriology 5)		3
Electives	4	4
Theoretical Instruction I., II. (Mil. Sci. 1, 2)	1	1
	17	17

Senior Year.

Composition of Addresses, Extempore Spk. (Pub. Spk. 3, 4)	2	2
Modern Language III., IV. (French, German, Spanish)	3	3
Poultry Husbandry III., IV.	5	5
Farm Management (Agronomy 14)		5
Animal Husbandry 7 (Principles of Breeding)	5	
Minor Electives	1	1
Theoretical Instruction I., II. (Mil. Sci. 1, 2)	1	1
	17	17

COURSE IN AGRICULTURAL CHEMISTRY.

Junior Year.

Argumentative Themes, Presentation, (Pub. Spk. 1, 2)	1	1
Modern Language III., IV. (French, German, Spanish) or		
Constitutional Law and Politics (Pol. Sci. 3)	3	
State and Municipal Government (Pol. Sci. 4)		3
Soil Chemistry I., II. (Chemistry 19, 20)	4	4
Agricultural Geology (Geology 8)	3	
Soil Physics (Agronomy 4)		3

Electives	5	5
Theoretical Instruction I., II. (Mil. Sci. 1, 2)	1	1
	17	17

or

Argumentative Themes, Presentation, (Pub. Spk. 1, 2)	1	1
Modern Language III., IV. (French, German, Spanish) or		
Constitutional Law and Politics (Pol. Sci. 3)	3	
State and Municipal Government (Pol. Sci. 4)		3
Agricultural Analysis I., II. (Chemistry 21, 22)	4	4
Principles of Stock Feeding (Animal Hus. 8)	2	
Elementary Chemistry, Organic (Chemistry 4)		2
Electives	6	6
Theoretical Instruction I., II. (Mil. Sci. 1, 2)	1	1
	17	17

Senior Year.

Composition of Addresses, Extempore Spk. (Pub. Spk. 3, 4)	2	2
Modern Language III., IV. (French, German, Spanish)	3	3
Advanced Agricultural Analysis I., II. (Chemistry 23, 24)	4	4
Plant Physiology I. (Botany 6)		
or		
Principles of Plant Pathology (Botany 8)		
or		
Soil Bacteriology (Bacteriology 10)	2	
Advanced Agronomy (Agronomy 15)		3
Electives	5	
Theoretical Instruction III., IV. (Mil. Sci. 3, 4)	1	1
	17	17

COURSE IN AGRICULTURAL BACTERIOLOGY.

Junior Year.

Argumentative Themes, Presentation, (Pub. Spk. 1, 2)	1	1

Modern Language III., IV. (French, German, Spanish)	3	3
Major Bacteriology I., II. (Bacteriology 2, 3)	5	5
Electives (Chemistry, Agronomy, Zoology or Vet. Sci.)	7	7
Theoretical Instruction III., IV. (Mil. Sci. 3, 4)	1	1
	17	17

Senior Year.

Composition of Addresses, Extempore Spk. (Pub. Spk. 3, 4)	2	2
Bacteriology, Research	8	8
Electives (Chemistry, Agronomy, Zoology or Vet. Sci.)	6	6
Theoretical Instruction III., IV. (Mil. Sci.)	1	1
	17	17

COURSE IN PLANT PATHOLOGY.

Junior Year.

Argumentative Themes, Presentation, (Pub. Spk. 1, 2)	1	1
Modern Language III., IV. (French, German, Spanish) or		
Constitutional Law and Politics (Pol. Sci. 3)	3	
State and Municipal Government (Pol. Sci. 4)		3
Principles of Plant Pathology (Botany 8)	3	
Diseases of Trees and Small Fruits (Botany 9)		3
Plant Physiology I., II. (Botany 6, 7)	3	3
Major Bacteriology (Bacteriology 2)	5	
*Phyto-Pathological Technique (Botany 16)		3
Electives	1	3
Theoretical Instruction I., II. (Mil. Sci. 1, 2)	1	1
	17	17

Senior Year.

Composition of Addresses, Extempore Spk. (Pub. Spk. 3, 4)	2	2
Plant Histology, Normal (Botany 3)	3	
*Pathological Histology (Botany 17)		3

*Advanced Taxonomy of Parasitic Fungi (Botany 18)	3	
Diseases of Vegetables and Field Crops (Botany 10) or		
Diseases of Forest and Shade Trees (Botany 11)		3
Thesis (Botany 15)	3	3
Principles of Entomology (Zoology 8)	3	
Entomology of Tree and Small Fruits (Zoology 9)		3
Electives	2	2
Theoretical Instruction III., IV. (Mil. Sci. 3, 4)	1	1
	17	17

COURSE IN ENTOMOLOGY.

Junior Year.

Argnmentative Themes, Presentation, (Pub. Spk. 1, 2)	1	1
Modern Language III., IV. (French, German, Spanish) or		
Constitutional Law and Politics (Pol. Sci. 3)	3	
State and Municipal Government (Pol. Sci. 4)		3
Principles of Entomology (Zoology 8)	5	
Advanced Entomology I. (Zoology 12)		5
Principles of Plant Pathology (Botany 8)	3	
Diseases of Tree and Small Fruits (Botany 9)		3
Practical Pomology (Hort. 11)	3	
Plant Breeding (Hort. 23)		3
Beekeeping I., II. (Zoology 15, 16)	1	1
Theoretical Instruction I., II. (Mil. Sci. 1, 2)	1	1
	17	17

Senior Year.

Composition of Addresses, Extempore Spk. (Pub. Spk. 3, 4)	2	2
Advanced Entomology II., III. (Zoology 13, 14)	5	5
Orchard Practice I., II. (Hort. 12, 13)	2	2
Embryology (Zoology 18)	3	
Histology (Zoology 19)		3
Electives	4	4
Theoretical Instruction (Mil. Sci. 3, 4)	1	1
	17	17

COURSE IN FORESTRY.

The forests of Oregon constitute a source of wealth second only to agriculture. A conservative estimate places the stumpage of the State at more than four hundred billion feet, board measure, an amount greater than that of any other single state in the Union. The fast vanishing timber supply of other sections of the United States points clearly to the concentration of the demand for that product on the forests of this and other states of the Northwest. The evidence of an approaching timber famine is already apparent in the keen competition for the possession of forest lands, and it will become more apparent as the supply of forest products decreases. The sharp advance in the price of stumpage during the past few years, together with a better conception of what can be accomplished through forestry methods, has impressed timber owners with the desirability of adopting improved methods of managing and utilizing their properties.

The timber land of the State, both in private and in public ownership, has a two-fold value to the commonwealth. It carries immense wealth in the present stand of timber, and it has the potential value of being able to reproduce a forest when the present stand is removed. The forest land, then, like agricultural land, with wise management can be made to yield a perpetual revenue.

To meet the needs of the State in the care and development of its forest resources, the College has provided a regular course of four years which will be supplemented with a winter short course. While the purpose of the four-year course is to supply the student with all the technical instruction practicable, it takes full cognizance of the fact that a forester should also be prepared for citizenship. To this end, the course of study covers a field more liberal than that of a purely technical course. The aim of the course, then, is to train a force of men fitted to do a good work in bringing the forest resources of the State to the highest degree of continued productiveness.

SECONDARY COURSE IN FORESTRY.

First Year.

	Semesters 1st.	Semesters 2nd.
Advanced Grammar I., II. (English A, B)	3	3
Classics I., II. (English C, D)	2	2
Algebra I., II. (Mathematics A, B)	5	5
Ancient History (History A)	3	
Mediaeval and Modern History (History B)		3
Elementary Drawing (Art A)	2	
Scientific Drawing I. (Art C)		2
Business Methods I., II. (Business Administration E, F)	2	2
Elementary Forestry I., II. (Forestry A, B)	4	4
	21	21

Second Year.

	1st.	2nd.
Rhetoric and Composition I., II. (English E, F)	3	3
Classics III., IV. (English G, H)	2	2
Algebra III., Geometry I., II. (Mathematics C, D, E)	5	5
Silviculture I., II. (Forestry C, D)	2	2
Plant Relations (Botany C)		2
Veterinary Science (Animal Husbandry B)	1	
Business English (English 11)		3
Elementary Commercial Law (Political Science 3)	3	
Mechanical Drawing I. (Mechanical Engineering 1)	3	
Woodwork V. (Shopwork G)	2	
Blacksmithing III. (Shopwork L)		2
Range Management (Animal Husbandry 6)		2
	21	21

DEGREE COURSE IN FORESTRY.

Freshman Year.

	1st.	2nd.
Rhetoric I., II. (English 1, 2)	3	3
Advanced Classics (English 3, 4)	2	2
Trigonometry I. and College Algebra I., (Math. 1, 4)	5	
Plane Surveying I. (Civil Engineering 1)		5
General Chemistry I. (Chemistry 1)	4	
General Chemistry II. (Chemistry 2)		4

Principles of Botany I., II. (Botany 1, 2)	3	3
General Forestry (Forestry 1, 2)	3	3
Library Practice (Library 1)	1	
Hygiene (Physical Education 9)		1
	21	21

Sophomore Year.

Modern Language I., II. (French, or German) or		
Modern English Prose I., II. (English 12, 13)	3	3
General Physics III., IV. (Physics 3, 4)	5	5
Zoology I., II. (Zoology 1, 2)	3	3
Plant Histology (Botany 3)	3	
Morphology and Taxonomy of Seed Plants (Botany 4)		3
Silviculture III. (Forestry 3, 4)	3	4
Topographic Surveying (Civil Engineering 5)	4	
Engineering Geology (Geology 4)		3
	21	21

Juior Year.

Argumentative Themes, Presentation (Public Speaking, 1, 2)	1	1
Modern Language III., IV. (French or German)		
Constitutional Law and Politics (Pol. Sci. 3)	3	
State and Municipal Government (Pol. Sci. 4)		3
Plant Physiology I., II. (Botany 6, 7) or		
Principles of Plant Pathology (Botany 8)	3	
Diseases of Forest and Shade Trees (Botany 11)		3
Introductory Entomology (Zoology 8)	3	
Advanced Silviculture (Forestry 17)	3	
Forest Surveying and Mapping (Forestry 18)		3
Forest Entomology (Zoology 11)		3
Mensuration I., II. (Forestry 5, 6)	3	3
Theotretical Instruction I., II. (Mil. Sci. 1, 2)	1	1
	17	17

Senior Year.

Composition of Addresses (Public Speaking 3)	2	
Elements of Steam Engineering (Mech. Eng. 9)	2	
Management I., II. (Forestry 7, 8)	5	5

Utilization (Forestry 9)	2	
Lumbering (Forestry 10)		5
Dendrology (Forestry 11)	3	
Wood Technology (Forestry 12)		3
Wood Preservation (Forestry 13)	2	
National Forest Administration (Forestry 14)		3
Theoretical Instruction III., IV. (Mil. Sci. 3, 4)	1	1
	17	17

NOTE—Substitutions for other courses:

Camp management, Forestry 15, no credit.

Field work, Forestry 16. Eight weeks between the junior and senior years, 4 credits.

COURSES IN DOMESTIC SCIENCE AND ART

The purpose of the School of Domestic Science and Art is the discovery and development of woman's potentialities which are frequently neglected in her education and the solution of problems in her life not usually solved by her education.

The school aims to make the woman it graduates a woman of culture and broad interests, able to cope successfully with life's problems, particularly those distinctly her own. With this aim in view, it offers courses in English, Mathematics, History and the Languages, as well as courses in the sciences fundamental to the understanding of proper cooking and hygienic living; also courses in Art to train the eye and the hand and to form a basis for constructive work, such as is appropriate to courses in Basketry, Weaving, House-Construction and Decoration. The student has an opportunity frequently to apply her class work to real problems in decoration for social functions and in the preparation of the refreshments for such entertainments as are given by the College. This work should also prepare a woman to deal successfully with various phases of professional problems in domestic economy in which there is a growing demand for well trained women.

SECONDARY COURSE IN DOMESTIC SCIENCE AND ART.

First Year.

Advanced Grammar I., II. (English A, B)	3	3
Classics I., II. (English C, D)	2	2

Algebra I., II. (Mathematics A, B)	5	5
Ancient History (History A)	3	
Mediaeval and Modern History (History B)		3
Drawing I., II. (Art A, C)	2	2
Plain Cookery I., II. (Domestic Science A, B)	3	3
Plain Sewing I., II. (Domestic Art A, B)	3	3
	21	21

Second Year.

Rhetoric and Composition I., II. (English E, F)	3	3
Classics III., IV. (English G, H)	2	2
Algebra III., Plane and Solid Geometry (Math. C, D, E)	5	5
Drawing III., IV. (Art D, E)	2	2
Essentials of Botany I., II. (Botany A, B)	2	2
Cookery, Serving, Simple Dietetics I., II. (Dom. Sci. C, D)	3	3
Sewing, Simple Dresses and Millinery I., II. (D. A. C, D)	3	3
Laundering I., II. (Domestic Science E, F)	1	1
	21	21

DEGREE COURSE IN DOMESTIC SCIENCE AND ART.

Freshman Year.

	Semesters	
	1st.	2nd.
Rhetoric I., II. (English 1, 2)	3	3
Advanced Classics and Reading I., II. (English 3, 4)	2	2
General Chemistry (Chemistry 3)	4	
Elementary Organic Chemistry (Chem. 4)		4
Botany I., II. (Botany 1, 2)	3	3
English History (History 1)	3	
Drawing IV. (Art 6)		3
Science of Cookery I. (Domestic Science 1)	3	
Science of Cookery II. (D. S. 2) or III. (D. S. 3)		3
Sewing I., II (Domestic Art 1, 2)	2	2
Library Practice (Library 1)	1	
Hygiene (Physical Education 9)		1
	21	21

Sophomore Year.

The Essay (English 5)	3	
The English Drama (English 6)		3
Modern Language I., II. (French, German, or Spanish), or Latin I., II	3	3
Physics VII., VIII. (Physics 7, 8)	3	3
Chemistry of Foods (Chemistry 14)	4	
Zoology III. (Zoology 3)		3
Design I., II. (Art 2, 3)	2	2
Simple Dressmaking, Hand Sewing and Millinery I., II. (Domestic Art 3, 4)	3	3
Advanced Cookery I., II. (Domestic Science 4, 5)	3	3
Laundering III. (Domestic Science 6)		1
	21	21

Junior Year.

English Literature I., II. (English 7, 8)	3	3
Modern Language III., IV. (French, German, or Spanish), or Latin III., IV	3	3
Physiology and Hygiene I., II. (Zoology 4, 5)	3	3
Home and Private Business Management (Bus. Adm. 9)	2	
Floriculture (Horticulture 29)	2	
Landscape Gardening (Horticulture 30)		2
Electives:		
Dressmaking and Tailoring (D. A. 5) or Special Cookery (D. S. 7)	2	
Home Nursing (Domestic Science 8)		1
House Construction and Decoration (D. A. 6)		3
Basketry I., II. (D. A. 7, 8) 2 credits each semester or Marketing (D. S. 9)	2	
Home Problems (Domestic Science 10)		2
	17	17

Senior Year.

American Literature I., II. (English 9, 10)	2	2
General Psychology (Psychology 1)	3	
Bacteriology I., II. (Bacteriology 6, 7)	2	2
House Sanitation (Domestic Science 11)		2

Vegetable Gardening and Small Fruit Culture (Hort. 31)		3
Thesis	2	2
Electives	8	6
	17	17

SECONDARY COURSE IN MECHANIC ARTS.

The Secondary Course in Mechanic Arts is designed to meet the needs of those students who desire industrial training. It is open to those who have completed the eighth grade State examinations, provided they do not come from places where local high schools are offering the same line of work. It is thought that this course will be helpful to those who desire to become workers in wood or metal; to those who wish to teach industrial work in the schools of the State, or elsewhere, as well as to those who intend to take one of the degree courses later. The scope of the work is necessarily more limited than in the degree courses, but special stress is laid upon the industrial features. The tendency of modern education is toward industrial training. Many believe that this training should begin in the common schools. If so, colleges and secondary schools must supply teachers who are proficient in this work.

In this course, one-third of the student's time must be given to the distinctively industrial work. Woodwork is required during the first year, but considerable latitude is allowed in the selection of the work of the second year.

The student is brought into actual contact with the work itself by being required to become proficient in the construction of useful articles of wood and metal. The purpose throughout is to combine the training of mind, hand, and eye in a manner that will enable the student to formulate plans rapidly and execute them skilfully.

First Year.

	Semesters	
	1st.	2nd.
Advanced Grammar I., II. (English A, B)	3	3
Classics I., II. (English C, D)	2	2
Algebra I., II. (Mathematics A, B)	5	5

Ancient History (History A)	3	
Mediaeval and Modern History (History B)		3
Drawing I. (Art A)	3	
Machine Sketching (Art B)		3
Woodwork I., II. (Shopwork A, B)	5	5
	21	21

Second Year.

Rhetoric and Composition I., II. (English E, F)	3	3
Classics III., IV. (English G, H)	2	2
Algebra III., Geometry I., II. (Math. C, D, E)	5	5
Elementary Physics I., II. (Physics A, B)	4	4
Business Methods I., II. (Bus. Ad. E, F)	2	2
Woodwork III. and IV. (Shop C, D), Patternmaking I,, II. (Shop E, F), Woodwork VI., VII. (Shop H, I), Woodwork XI., XII. (Shop O, P), or Blacksmithing I., II. (Shop J, K)	5	5
	21	21

COURSE IN CIVIL ENGINEERING.

The purpose of this course is to give the student thorough theoretical instruction, accompanied by as much laboratory and field practice as possible. The course includes such basic studies as English, Mathematics, Chemistry, Physics, Drawing, Materials of Engineering, Applied Mechanics and Hydraulics, in addition to the technical work given by this department. In addition to the required studies, the student has opportunity, during the senior year, to elect from the other engineering courses subjects that may be of special interest to him.

Recognizing the value of drawing to the professional engineer as a means of expressing his ideas and of carrying out his plans, and also as a means by which the young graduate may enter some of the most desirable positions, the department lays special emphasis upon this subject. Besides the general course given in Mechanical Engineering, and required of students in the course in Civil Engineering, three additional and more technical courses are required in the Civil Engineering course. One of these, a course in Lettering and Title Design, is given by the department of Art, the others by this department. Much additional drawing is required in connection with the preparation of plans and working drawings as part of the office work of the higher technical courses.

The work in Field Surveying begins with the freshman year, and continues through the sophomore year, with from six to ten hours of field practice a week. The student serves in subordinate positions at first, and gradually advances as a knowledge of the instruments is acquired until he is placed in charge of field parties and is held responsible for the results accomplished. During the freshman year he is given practice in land surveying and leveling, and in topographic and railroad surveying during the sophomore year. At all times conscientious attention to duty, accuracy and speed will be demanded. Every student keeps full and accurate notes of all work done in the field. These, after being criticised, are transcribed and filed with the instructor.

In the study of Highways, special reference is made to the conditions and needs in Oregon. Due consideration is given to the drainage and maintenance of dirt and gravel roads. In consequence of the vast area of the State, this class of roads must, of necessity, constitute the greater part of its highways for many years. The courses in theoretical and applied hydraulics cover a period of one and a half years. The various irrigation projects of Oregon offer excellent opportunities for study and work to our students and graduates.

DEGREE COURSE IN CIVIL ENGINEERING.

Freshman Year.

	Semesters	
	1st.	2nd.
Rhetoric I., II. (English 1, 2)	3	3
Advanced Classics and Reading (English 3)	2	
Trigonometry I., College Algebra (Math. 1, 4)	5	
Elementary Analysis (Math. 5)		5
Spherical Trigonometry (Math. 3)	1	
General Chemistry I. (Chemistry 1)	4	
General Chemistry II. (Chemistry 2)		4
Mechanical Drawing I. (Mechanical Engineering 1)	3	
Descriptive Geometry (Mechanical Engineering 2)		3

Plane Surveying I. (Civil Engineering 1)		5
Freehand Lettering and Title Design (Art 1)	2	
Library Practice (Library 1)	1	
Hygiene (Physical Education 9)		1
	21	21

Sophomore Year.

Analytic Geometry, Calculus I., II. (Math. 6, 7, 8)	5	5
Argumentative Themes, Presentation (Public Speaking 1, 2)	1	1
General Physics III., IV. (Physics 3, 4)	5	5
Modern Language I., II. (French, German, or Spanish) or		
Modern English Prose I., II. (English 12, 13)	3	3
Topographic Surveying (Civil Engineering 5)	4	
Railroads I., II. (Civil Engineering 6, 7)	1	5
Engineering Drawing I., II. (C. E. 3, 4)	2	2
	21	21

Junior Year.

Composition of Addresses, Extempore Spk. (Pub. Spk. 3, 4)	2	2
Modern Language III., IV. (French, German, or Spanish) or		
Constitutional Law and Politics (Pol. Sci. 3)	3	
State and Municipal Government (Pol. Sci. 4)		3
Statics and Dynamics (Mech. Eng. 5)	4	
Strength of Materials (Mech. Eng. 6)		2
Hydraulics (Mech. Eng. 7)		2
Materials of Engineering (Mech. Eng. 8)	2	
Highway Construction (Civil Eng. 8)	3	
Highway Laboratory (Exp. Eng. 16)	1	
Cement Laboratory (Exp. Eng. 11)	1	
Masonry and Foundations (Civil Eng. 9)		4
Structural Materials, Laboratory (Exp. Eng. 21)		2
Hydraulic Laboratory (Exp. Eng. 26)		1
Theoretical Instruction I., II. (Mil. Sci. 1, 2)	1	1
	17	17

Senior Year.

Roofs and Bridges I., II. (Civil Eng. 10, 11)	4	4
Sanitary Engineering (Civil Eng. 12)	3	
Water Supply Engineering (Civil Eng. 13)	3	
Contracts and Specifications (Civil Eng. 15)		1
Irrigation Engineering (Civil Eng. 14)		4
Engineering Seminar II., III. (Civil Eng. 17, 18)	1	1
Electives	5	6
Theoretical Instruction III., IV. (Mil. Sci. 3, 4)	1	1
	17	17

TRANSITION COURSE IN CIVIL ENGINEERING.

(Effective for the year 1911-1912.)

Senior Year.

Statics and Dynamics (Mech. Eng. 5)	4	
Strength of Materials (Mech. Eng. 6)		2
Hydraulics (Mech. Eng. 7)		2
Highway Construction (Civil Eng. 8)	3	
Highway Laboratory (Exp. Eng. 16)	1	
Cement Laboratory (Exp. Eng. 11)	1	
Structural Materials Laboratory (Exp. Eng. 21)		2
Hydraulic Laboratory (Exp. Eng. 26)		1
Masonry and Foundations (Civil Eng. 9)		4
Contracts and Specifications (Civil Eng. 15)		1
Engineering Seminar (Civil Eng. 16, 17)	1	1
Modern Language V., VI. (French, German, or Spanish)	3	3
Electives	3	
Theoretical Instruction III., IV. (Mil. Sci. 3, 4)	1	1
	17	17

COURSE IN ELECTRICAL ENGINEERING.

It is a fact well known to engineers that the development of water power in Oregon has only begun; and when all of the streams are generating electrical energy for railways, lighting and manufacturing purposes, there will be several millions of horse power continually in the service of mankind. The value of the annual output of the large hydro-electric plants then in operation will be enormous. Owing to the depletion of the coal supply with the progress of time, the water wheel must ultimately be substituted for the steam engine in the manufacturing of many products. Processes in the reduction of metals; in the making of abrasives; and in the manufacture of chemicals, including nitric acid and nitrates, for fertilizers, may all be carried on in this State to advantage because of the cheapness of electrical energy obtained from the mountain streams. The field of electro-chemistry is a promising one to those who have tastes leading them in that direction. The installation and operation of power system will require the employment of many highly trained young men.

Because of these great opportunities much stress is laid upon the studies which will best fit the student for his chosen work. The course is so designed, however, that theory given in the class room is supplemented by its practical application in the shops and laboratories.

The first two years are devoted to the same studies as are required in Mechanical Engineering. At the beginning of the third year the real professional work is taken up and continued to the end of the course. A study is made of the structure and principles involved in the design of the several types of dynamos, and electrical appliances; of the operation of machines and apparatus; of their commercial applications; and of the phenomena incident to the use of high tension alternating currents, the College substation of a long-distance transmission line being available for illustrative and testing purposes.

DEGREE COURSE IN ELECTRICAL ENGINEERING.

Freshman Year.

	Semesters	
	1st.	2nd.
Rhetoric I., II. (English 1, 2)	3	3
Advanced Classics I., II. (English 3, 4)	2	2
Trigonometry I., College Algebra (Math. 1, 4)	5	
Elementary Analysis (Math. 5)		5
General Chemistry I. (Chemistry 1)	4	
General Chemistry II. (Chemistry 2)		4
Mechanical Drawing I. (Mech. Eng. 1)	3	
Descriptive Geometry (Mech. Eng. 2)		3

Woodwork VIII. (Shopwork 1)	3	
Patternmaking III. (Shopwork 2)		3
Library Practice (Library 1)	1	
Hygiene (Physical Education 9)		1
	21	21

Sophomore Year.

Analytic Geometry and Calculus I., II. (Math. 6, 7, 8)	5	5
General Physics III., IV. (Physics 3, 4)	5	5
Argumentative Themes, Presentation (Public Speaking 1, 2)	1	1
Modern Language I., II. (French, German, or Spanish)	3	3
Modern Language I., II. (French, German or Spanish	3	3
Mechanical Drawing II. (Mech. Eng. 3)	4	
Mechanism (Mech. Eng. 4)		4
Blacksmithing IV. (Shopwork 5)	3	
Machine Shop (Shopwork 9)		3
	21	21

Junior Year.

Composition of Addresses, Extempore Speaking (Pub. Spk. 3, 4)	2	2
Modern Language III., IV. (French, German, or Spanish)	3	3
Statics and Dynamics (Mech. Eng. 5)	4	
Strength of Materials (Mech. Eng. 6)		2
Hydraulics (Mech. Eng. 7)		2
Electrical and Magnetic Measurements (Physics 9)	2	
Steam Machinery (Mech. Eng. 10)		2
Dynamo-Electric Machinery (Elec. Eng. 1)	3	
Alternating Currents (Elec. Eng. 2)		3
Electrical Engineering Laboratory I., II. (E.E. 4, 5)	2	2
Theoretical Instruction I., II. (Mil. Sci. 1, 2)	1	1
	17	17

Senior Year.

American Literature (English 9, 10)	2	2
Advanced Alternating Currents (E. E. 3)	3	

Power Plants (Elec. Eng. 11)		3
Electrical Design I., II. (Elec. Eng. 9, 10)	3	3
Electrical Engineering Laboratory III., IV. (E. E. 6, 7)	2	2
Electrical Distribution (Elec. Eng. 8)	2	
Thesis (Elec. Eng. 16)	1	1
Telephony (Elec. Eng. 15)		2
Storage Batteries (Elec. Eng. 14)		1
Thermodynamics (Mech. Eng. 15)	3	
Engineering Laboratory V. (Exp. Eng. 5)		2
Theoretical Instruction III., IV. (Mil. Sci. 3, 4)	1	1
	17	17

TRANSITION COURSE IN ELECTRICAL ENGINEERING.

Senior Year.

Composition of Addresses (Public Speaking 3)	2	
Modern Language III., IV. (French, German, or Spanish)	3	3
Statics and Dynamics (Mech. Eng. 5)	4	
Strength of Materials (Mech. Eng. 6)		2
Hydraulics (Mech. Eng. 7)		2
Advanced Alternating Currents (E. E. 3)	3	
Power Plants (Elec. Eng. 11)		3
Electrical Design (Elec. Eng. 9, 10)	2	2
Electrical Engineering Laboratory III., IV. (E. E. 6, 7)	2	2
Thesis (Elec. Eng. 16)		2
Theoretical Instruction III., IV. (Mil. Sci. 3, 4)	1	1
	17	17

COURSE IN MECHANICAL ENGINEERING.

The course in Mechanical Engineering has for its purpose the preparation of young men for positions of usefulness and responsibility in the industrial life of the country.

The Pacific Northwest is just now entering upon a period of rapid progress in the building of railroads, the development of water power, the marketing of forest products, and the upbuilding of manufactories; all of which require men conversant with the general principles of engineering. It is the purpose of all engineering courses to conrtibute to this general advancement by turning out graduates equipped with the necessary knowledge and skill to make them active factors in this great work.

It is the general plan of the course in Mechanical Engineering to lay a broad foundation in English, Mathematics, Chemistry, and Physics, accompanied by Drawing and Shopwork, during the first two years of the course. The work of the last two years is more technical and professional in its nature consisting in a study of the principles involved in the development of power by steam engines, water wheels, gas and gasoline engines, and steam turbines. It also involves a critical study of the design of machines and materials entering into their construction, as well as tests to determine their efficiency.

Instruction is given by means of lectures, recitations, and laboratory exercises. The scientific principles involved in machines and mechanical movements are taught in the class room as well as the application of mathematics to the solution of problems in mechanical engineering. In the shops, the student learns the use of tools and the value of different methods of doing work from the standpoint of economical construction. In the drafting room, he learns to make working drawings and blue-prints of machines, and to formulate designs of his own.

With these advantages to aid him, the ambitious student should be able to take and maintain a position in the general industrial and engineering development which is the leading and characteristic feature of the age in which we live.

DEGREE COURSE IN MECHANICAL ENGINEERING.

Freshman Year.

	Semesters	
	1st.	2nd.
Rhetoric I., II. (English 1, 2)	3	3
Advanced Classics and Reading (English 3, 4)	2	2
Trigonometry I., College Algebra (Math. 1, 4)	5	
Elementary Analysis (Math. 5)		5
General Chemistry I., II. (Chemistry 1, 2)	4	4
Mechanical Drawing I. (Mech. Eng. 1)	3	

Descriptive Geometry (Mech. Eng. 2)		3
Woodwork VIII. (Shopwork 1)	3	
Patternmaking III. (Shopwork 2)		3
Library Practice (Library 1)	1	
Hygiene (Physical Education 9)		1
	21	21

Sophomore Year.

Analytic Geometry and Calculus I., II. (Math. 6, 7, 8)	5	5
General Physics III., IV. (Physics 3, 4)	5	5
Argumentative Themes, Presentation (Public Speaking 1, 2)	1	1
Modern Language I., II. (French, German, or Spanish) or		
Modern English Prose I., II. (English 12, 13)	3	3
Mechanical Drawing II. (Mech. Eng. 3)	4	
Blacksmithing IV., V. (Shopwork 5, 6)	3	3
Mechanism (Mech. Eng. 4)		4
	21	21

Junior Year.

Composition of Addresses, Extempore Speaking (Public Speaking 3, 4)	2	2
Modern Language III., IV. (French, German, or Spanish) or		
Constitutional Law and Politics (Pol. Sci. 3)	3	
State and Municipal Government (Pol. Sci. 4)		3
Statics and Dynamics (Mech. Eng. 5)	4	
Strength of Materials (Mech. Eng. 6)		2
Hydraulics (Mech. Eng. 7)		2
Materials of Engineering (M. E. 8)	2	
Engineering Laboratory I., II. (Exp. Eng. 1, 2)	2	2
Machine Shop I., II. (Shopwork 9, 10)	3	3
Steam Machinery (Mech. Eng. 10)		2
Theoretical Instruction I., II. (Mil. Sci. 1, 2)	1	1
	17	17

Senior Year.

Machine Design I., II. (M. E. 13, 14)	4	4
Thermodynamics (Mech. Eng. 15)	3	
Engineering Laboratory III., IV. (Exp. Eng. 3, 4)	2	2
Hydraulic Motors (Mech. Eng. 18)	2	
Internal Combustion Motors (Mech. Eng. 16)		2
Steam Turbines (Mech. Eng. 17)		2
Thesis	1	2
Electives	6	6
Theoretical Instruction III., IV. (Mil. Sci. 3, 4)	1	1
	17	17

TRANSITION COURSE IN MECHANICAL ENGINEERING.

Senior Year

Statics and Dynamics (Mech. Eng. 5)	4	
Strength of Materials (Mech. Eng. 6)		2
Hydraulics (Mech. Eng. 7)		2
Engineering Laboratory I., II. (Exp. Eng. 1, 2)	2	2
Machine Design I., II. (Mech. Eng. 13, 14)	4	4
Modern Language III., IV. (French, German, or Spanish)	3	3
Theoretical Instruction III., IV. (Mil. Sci. 3, 4)	1	1
*Electives	6	6
	17	17

*Students will be required to elect a modern language or Public Speaking 3, 4.

COURSE IN MINING ENGINEERING.

The course in Mining Engineering is planned to give the student a thorough knowledge of the principles which form the ground-work of the sciences of Mining and Metallurgy.

It is the aim of the Mining Engineering department in arranging the courses to give the student first a drill in the fundamental studies common to all engineering courses, such as Mathematics, Chemistry, English, Physics, Drawing, Mechanics, etc. In the latter part of his course he applies the principles of these fundamental studies to the more distinctive technical subjects, such as Mineralogy, Geology, Mining, Mine Surveying, Metallurgy, and Ore Dressing.

The methods of instruction include the ordinary lecture, text-book, and recitation work, supplemented, so far as possible, by problems and illustrations drawn from actual mining and metallurgical practice. The successful mining engineer deals largely with concrete problems, hence the laboratory method of instruction is given a very important place in the training of the student. A portion of the last two summers is devoted to summer school work in Mine Surveying, and Mining and Metallurgical inspection. The students are required to keep systematic notes on the summer work, and to turn in to the professor in charge a complete report. On these trips of inspection, visits are made to plants which exemplify, often on a large scale, the application of principles taught in the class room to problems of commercial operation.

The technical training for the mining engineer is broad rather than highly specialized. Aside from the basic subjects common to all engineering courses, he must be well grounded in the principles of Chemistry, Metallurgy, and Geology. A student who pursues the Mining Engineering course to completion is able to choose his life work from among a number of distinct industrial lines; for example, he may choose his work in the management, investigation and exploitation of mines; he may choose his work in Ore Dressing, which covers the separation of the valuable minerals from the waste; he may go into metallurgical lines where he extracts the metal from its ores and puts it in shape for the market; or he may choose his work along geological lines and work either for the National Government or for private corporations.

DEGREE COURSE IN MINING ENGINEERING.

Freshman Year.

	Semesters	
	1st.	2nd
Rhetoric I., II. (English 1, 2)	3	3
Advanced Classics and Reading I. (English 3)	2	
Trigonometry I., College Algebra (Math. 1, 4)	5	
Elementary Analysis (Math. 5)		5
General Chemistry I., II. (Chemistry 1, 2)	4	4
Mechanical Drawing I. (Mech. Eng. 1)	3	

Descriptive Geometry (Mech. Eng. 2)		3
Plane Surveying I. (Civil Engineering 1)		5
Woodwork IX. (Shopwork 3)	3	
Library Practice (Library 1)	1	
Hygiene (Physical Education 9)		1
	21	21

Sophomore Year.

Analytic Geometry and Calculus I., II. (Math. 6, 7, 8)	5	5
Physics III., IV. (Physics 3, 4)	5	5
Argumentative Themes, Expression (Pub. Spk. 1, 2)	1	1
Qualitative Analysis II. (Chemistry 6)	3	
Quantitative Analysis II. (Chemistry 8)		3
Crystallography and Blowpipe Analysis (Geology 1)	4	
Determinative Mineralogy (Geology 2)		4
General Geology (Geology 3)		3
Blacksmithing VII. (Shopwork 8)	3	
	21	21

Junior Year.

Composition of Addresses, Extempore Speaking (Pub. Spk. 3, 4)	2	2
Statics and Dynamics (Mech. Eng. 5)	4	
Strength of Materials (Mech. Eng. 6)		2
Hydraulics (Mech. Eng. 7)		2
Fire Assaying I., II. (Mining Eng. 7, 13)	3	3
Mine Surveying and Mining Law (Mining Eng. 2)		3
Introduction to Metallurgy (Mining Eng. 8)	3	
Electives	4	4
Theoretical Instruction I., II. (Mil. Sci. 1, 2)	1	1
	17	17

Senior Year.

Petrology (Geology 6)	3	
Economic Geology (Geology 5)		5
Mining I. (Mining Eng. 4)	3	
Ore Dressing I., II. (Mining Eng. 5, 6)	3	3
Engineering Laboratory I., II. (Exp. Eng. 1, 2)	2	2
Contracts and Specifications (Civil Eng. 1)		1
Thesis	1	2

Electives	4	3
Theoretical Instruction III., IV. (Mil. Sci. 3, 4)	1	1
	17	17

TRANSITION COURSE IN MINING ENGINEERING.

Senior Year.

Composition of Addresses, Extempore Speaking (Pub. Spk. 3, 4)	2	2
Statics and Dynamics (Mech. Eng. 5)	4	
Strength of Materials (Mech. Eng. 6)		2
Hydraulics (Mech. Eng. 7)		2
Petrology (Geology 6)	3	
Economic Geology (Geology 5)		5
Metallurgy of Gold and Silver (Mining Eng. 10)	3	
Ore Dressing I. (Mining Eng. 5)		3
Electives	1	2
Theoretical Instruction III., IV. (Mil. Sci. 3, 4)	1	1
Mining (Mining Eng. 4)	3	
	17	17

COURSE IN COMMERCE.

The most progressive colleges and universities are now offering courses in commerce and finance. These courses have rapidly gained favor in response to an almost universal demand for thoroughly trained men to assume leadership in the commerce of the world.

The School of Commerce has been established in harmony with this modern tendency in education. Its aim is to do for the business man what the trade school does for the mechanic, what the schol of engineering does for the engineer, or what the school of law does for the lawyer. It does not claim to turn out finished business men or "captains of industry," but men who shall seek, and be prepared to assume, the responsibilities of commercial and financial leadership after a comparatively short apprenticeship and practical experience.

A thorough business course, therefore, covers more than a study of bookkeeping, commercial law, and penmanship, though all are subjects of greatest importance. Thorough courses in English, economics, modern languages, mathematics, natural sciences, etc., are equally important. In fact, all are in a sense only a means to one end: to facilitate the profitable exchange of commodities in the form of property or service. Hence the advantage of incorporating business courses into the curricula of the higher institutions of learning where courses in the basic subjects are already given.

The professional courses offered by the School of Commerce have been arranged and selected with special reference to two classes of students: the prospctive business manager, and the office employe. The latter studies chiefly the methods and technique of commerce, while the former lays special stress on the principles of economics and commerce. Two distinct courses are offered: A two-year course leading to a certificate of graduation, and a four-year course leading to the degree of Bachelor of Science. The Theory and Practice of Accounts, Stenography, and Commercial Law, are the principal technical subjects in the two-year course; while Economics, Trade and Transportation, Banking and Finance, Political Science, International Relations, and Public Accounting and Administration, are the professional subjects in the degree course. Special stress is laid on English in both courses, and the cultural development of the student is duly emphasized.

But while the School of Commerce emphasizes work preparatory to commercial pursuits, the fact that there is a business side to every vocation has been recognized by providing, in the second year of the Secondary courses, a two-hour course in Business Methods, especially adapted for the farmer, mechanic, housekeeper, professional man, etc. The exceptional laboratory and library facilities of the department are enjoyed by all students alike.

The Commercial course is especially attractive as a preparation for law; for teachers of commercial subjects; for public accountants; for administrative secretaries; and as a preparation for the Civil Service.

SECONDARY COURSE IN COMMERCE.

First Year.

	Semesters 1st.	Semesters 2nd.
Advanced Grammar and Composition I., II. (Eng. A, B)	3	3
Classics I., II. (English C, D)	2	2
Algebra I., II. (Math. A, B)	5	5
Ancient History (History A)	3	
Mediaeval and Modern History (History B)		3
Business Arithmetic I. (Business Ad. A)	5	
Bookkeeping (Business Ad. B)		5
Penmanship I., II. (Penmanship A, B)	1	1
Drawing I., II. (Art A, C)	2	2
	21	21

Second Year.

	1st.	2nd.
Rhetoric and Composition I., II. (English E, F)	3	3
Classics III., IV. (English G, H)	2	2
Algebra III., Geometry I., II. (Math. C, D, E)	5	5
Plant Relations (Botany C)		2
Civil Government and Administration (Pol. Sci. A)	2	
Business English (English 11)		3
Elementary Commercial Law (Pol. Sci. B)	3	
Stenography and Typewriting I., II. (Sten. 1, 2) or Accounting I., II. (Business Ad. 1, 2)	4	4
Advanced Penmanship (Penmanship 1, 2)	1	1
Orthography I., II. (Sten. 9, 10)	1	1
	21	21

DEGREE COURSE IN COMMERCE.

Freshman Year.

	Semesters 1st	Semesters 2nd.
Rhetoric I., II. (English 1, 2)	3	3
Advanced Classics and Reading I., II. (English 3,4)	2	2
Commercial Arithmetic II. (Bus. Ad. 10)	3	
Trigonometry II. (Math. 2)		3
General Chemistry I., II. (Chemistry 1, 2)	4	4
Business English (English 11)	3	

United States History (History 2)		3
*Accounting I., II. (Bus. Ad. 1, 2)	4	4
*Advanced Penmanship I., II. (Penmanship 1, 2)	1	1
Library Practice (Library 1)	1	
Hygiene (Physical Education 9)		1
	21	21

*Students who have finished Bus. Ad. 1, 2, and Pen. 1, 2, in the second year, take Stenography 1, 2.

Sophomore Year.

General Physics V., VI. (Physics 5, 6)	4	4
Modern Language I., II. (French, German, or Spanish)	3	3
Elements of Economics (Pol. Economy 1)	3	
Commercial Geography (Pol. Economy 2)		3
Advanced Accounting I., (Bus. Ad. 3)	5	
Corporation Accounting and Auditing (Bus. Ad. 4)		5
Advanced Penmanship III., IV. (Pen. 3, 4) or	1	1
*Stenography and Typewriting I., II. (Sten. 1, 2)	6	6
Physiology and Hygiene I., II. (Zoology 4, 5)	3	3
Lettering and Card Writing (Art 5)		2
Typewriting III. (Stenography 7)	2	
	21	21

*Students who have finished Sten. 1, 2, in the second year, take Bus. Ad. 1, 2, and Pen. 1, 2.

Junior Year.

Argnmentative Themes, Presentation (Public Speaking 1, 2)	1	1
Modern Language III., IV. (French, German, or Spanish)	3	3
Money and Banking (Political Economy 3)	3	
Corporation and Public Finance (Pol. Economy 4)		3
Business Organization and Management (Bus. Ad. 5)	4	
Theory and Practice of Advertising (Bus. Ad. 6) or Advanced Stenography I., II. (Sten. 3, 4)	5	5
Electives		4
Theoretical Instruction I., II. (Mil. Sci. 1, 2)	1	1
	17	17

Senior Year.

Composition of Addresses, Extempore Speaking (Pub. Spk. 3, 4)	2	2
Modern Language V., VI. (French, German, or Spanish)	3	3
Advanced Economics (Political Economy 5)		3
History of Commerce (Political Economy 6)	3	
Commercial Law I., II. (Political Science 1, 2)	3	3
Electives	5	5
Theoretical Instruction III., IV. (Mil. Sci. 3, 4)	1	1
	17	17

COURSE IN PHARMACY.

It is now so generally recognized and so universally admitted as to need but passing comment, that in order to attain to any degree of success in a scientific profession, it is necessary to be thoroughly trained in the science upon which the profession is based.

With reference to the profession of pharmacy, it may truly be said that it is one of applied sciences, since the pharmacist has constant use for a knowledge of the sciences of chemistry, of physics and botany. It is, therefore, of utmost importance to the individual who has decided to enter upon a pharmaceutical carrer, that he begin properly in the matter of an education. The institution in which the study of the natural sciences is prominently featured is, without doubt, the one best qualified to afford him the training suited to his particular needs. In this connection, attention is directed to colleges of the land-grant, or agricultural type. Financed by state and Federal Government, the material welfare of the institutions of this class is assured. With unusual facilities in the way of laboratories and equipment, and with an instructional force selected especially for the purpose, they are prepared to offer exceptional advantages for mental and manual training in those professions having for their foundation a knowledge of the sciences.

In recognition of the fitness of conditions and of an apparent need for such instruction, the Oregon Agricultural College, in 1898, added to its curricula, a Course in Pharmacy, the purpose of which is to afford the young men and women of the State an opportunity of obtaining a thorough training in the theoretical and practical features of this profession.

The course comprehends instruction in class and lecture room, in extensive practice in the laboratory, and excursions afield in botany. The value of laboratory practice is fully appreciated; it is in this connection that facts mentioned in text-book and lecture are brought to the student's notice in a way that the importance is emphasized, the significance demonstrated, and the fact itself fixed in the mind. In the pharmaceutical laboratories, the student becomes experienced in the manufacture of medicinal preparations and in filling prescriptions. In the laboratories of chemistry, of botany, of bacteriology, of physics, and of biology, he gains valuable experience in connection with each of these related sciences. It is expected, and not without reason, that owing to the nature and extent of the instruction given, graduates of this course will be qualified to assume positions of trust and responsibility in the professional world. Not only is this training of benefit to the pharmacist, but it forms an ideal pre-medical course.

The enactment of the Pure Food and Drug Law of 1906 has opened a new and attractive field for those who are proficient in chemical and pharmaceutical knowledge. Laboratories for the examination of food and drug samples are being established in the various large cities of the country by the Federal Government. Positions in these laboratories are, in many instances, held by graduates of pharmacy.

Two courses are offered: one of four years, leading to the degree of Bachelor of Science in Pharmacy. The other is a short course, of two years, for the completion of which a certificate is given.

A clause in the revised pharmacy law of this State, enacted by the Legislature, session of 1907, stipulates that a candidate for registration as a licentiate of pharmacy, before being eligible for examination by the State Board of Pharmacy, must have had four years of practical experience in a store where prescriptions and medicines are dispensed. Three years of such experience are required of the candidates for registered assistant pharmacies. The Oregon Board of Pharmacy, by special resolution, has granted students who complete the four-year course in Pharmacy at this institution, the privilege of taking the senior examination as given by the Board, and to those who complete the two-year course, the privilege of the junior examination, the regulation with reference to store experience being waived.

The Laue Prize. Mr. John M. A. Laue, prominent in business and professional circles of Portland, prompted by the desire to encourage students to strive for a high degree of attainment and efficiency, has very generously established an annual prize of $50, to be divided between the two students in the Pharmacy Course of this institution who shall make the best showing in their work. The prize is so apportioned that $35 is awarded to the one in the four-year course who shall have the highest standing, and $15 to the one of like standing in the two-year course.

DEGREE COURSE IN PHARMACY.

Freshman Year.

	Semesters	
	1st.	2nd.
Rhetoric I., II. (English 1, 2)	3	3
Advanced Classics and Reading I., II. (English 3, 4)	2	2
Principles of Botany I., II. (Botany 1, 2)	3	3
Zoology I., II. (Zoology 1, 2)	3	3
Latin I., II. (Latin 1, 2)	3	3
General Chemistry I., II. (Chemistry 1, 2)	4	4
Drawing I., II. (Art A, C)	2	2
Library Practice (Library 1)	1	
Hygiene (Physical Education 9)		1
	21	21

Sophomore Year.

American Literature I., II. (English 9, 10)	2	2
Argumentative Themes, Presentation (Public Speaking 1, 2)	1	1
Modern Language I., II. (French, German, or Spanish)	3	3
Qualitative Analysis (Chemistry 5)	4	
Organic Chemistry (Chemistry 9)		4
Plant Histology (Botany 3)	3	
Morphology and Taxonomy of Seed Plants (Bot. 4)		3

Physiology and Hygiene I., II. (Zoology 4, 5)	3	3
Accounting I., II. (Business Administration 1, 2)	4	4
Advanced Penmanship I., II. (Penmanship 1, 2)	1	1
	21	21

Junior Year.

Modern Language III., IV. (French, German, or Spanish)	3	3
Quantitative Analysis I. (Chemistry 7)	3	
Pharmaceutical Analysis (Chemistry 12)		3
General Physics V., VI. (Physics 5, 6)	4	4
General Pharmacy (Pharmacy 1)	2	
Nomenclature (Pharmacy 2)	1	
Therapeutics and Doses (Pharmacy 5)	2	
General Pharmacy (Pharmacy 6)		4
Pharmacognosy I., II. (Pharmacy 3, 4)	1	2
Theoretical Instruction I., II. (Mil. Sci. 1, 2)	1	1
	17	17

Senior Year.

Composition of Addresses, Extempore Speaking (Public Speaking 3, 4)	2	2
General Bacteriology (Bacteriology 4)	3	
Practical Bacteriology (Bacteriology 5)		3
General Pharmacy (Pharmacy 7)	2	
Materia Medica and Toxicology I., II. (Phar. 8, 9)	3	3
Prescription Practice I., II. (Phar. 10, 11)	3	5
Theoretical Instruction III., IV. (Mil. Sci. 3, 4)	1	1
Electives	3	3
	17	17

TRANSITION COURSE IN PHARMACY.

Senior Year.

Composition of Addresses, Extempore Speaking (Public Speaking 3, 4)	2	2
General Bacteriology (Bacteriogy 4)	3	
Practical Bacteriolgoy (Bacteriology 5)		3
Electives	3	3
General Pharmacy (Pharmacy 7)	2	
Materia Medica and Toxicology I., II. (Phar. 8, 9)	3	3

Prescription Practice I., II. (Pharmacy 10, 11)	3	5
Theoretical Instruction III., IV. (Mil. Sci. 3, 4)	1	1
	17	17

TWO-YEAR COURSE IN PHARMACY.

(Requirements for entrance to this course are identical with those for entrance to any of the regular Degree courses.)

First Year.

	Semesters	
	1st.	2nd.
Rhetoric I., II. (English 1, 2)	3	3
Advanced Classics and Reading I., II. (English 3, 4)	2	2
Accounting I., II. (Bus. Ad. 1, 2)	4	4
Advanced Penmanship I., II. (Penmanship 1, 2)	1	1
General Chemistry 1, 2)	4	4
General Pharmacy (Pharmacy 1, 6)	2	4
Nomenclature (Pharmacy 2)	1	
Therapeutics and Doses (Pharmacy 5)	2	
Pharmacognosy I., II. (Pharmacy 3, 4)	1	2
Library Practice (Library 1)	1	
Hygiene (Physical Education 9)		1
	21	21

Second Year.

Qualitative Analysis (Chemistry 5)	4	
Organic Chemistry (Chemistry 9)		4
General Pharmacy III. (Pharmacy 7)	2	
Materia Medica and Toxicology I., II. (Phar. 8, 9)	3	3
Prescription Practice I., II. (Pharmacy 10, 11)	3	5
Electives	5	5
	17	17

DEPARTMENTS OF INSTRUCTION

SCHOOL OF AGRICULTURE.

Agronomy.

Professor Scudder.
Assistant Professor Hyslop.
Mr. Powers.
Mr. Koeber.

Agronomy is the science of the fields and the crops of the fields. Instruction in this science is offered by the department of Agronomy in the following subjects:

(a) Soils; their origin, structure, fertility, cultivation, and improvement.

(b) Field Crops; their history, growth, culture, improvement and value.

(c) Farm Mechanics; the structures, machinery, drainage, and irrigation of the farm.

(d) Farm Management; the methods, business principles, history, and economics of farming.

In every subject, instruction is accomplished equally through class room, laboratory and field work; theory is checked by practice. For the latter methods of instruction, the finely equipped laboratories of this department, the various soil conditions, numerous experimental crops, and extensive structures of the Experiment Station farm, offer excellent facilities. The large and newly equipped laboratories for the courses in Field Crops and the courses in Soils, in the new Agronomy building, and for Farm Mechanics in the new Farm Mechanics building, are not excelled by those of any institution in the country.

The Secondary courses in Agronomy deal only with the practical application of the underlying principles of agriculture to specific conditions—aiming to give the less well prepared student as much information as possible in a short time concerning those practices most vital to successful farming—to send him back to the farm better prepared to cope with its problems. These courses serve also to prepare the student for collegiate Agriculture.

The object of the collegiate courses in this department is to give the student such mastery of all the subjects relating to the soil, field crops, farm mechanics, or farm management as will help prepare him for the highest type of practical farming or for a successful career in professional agriculture such as is found in the U. S. Department of Agriculture, or in the State Experiment Stations and Agricultural Colleges. So far this department has had more calls for capable agronomists than it has been able to fill, positions paying all the way from $75 to $200 per month.

The farms of the Northwest offer even greater opportunities for men trained in knowledge of the soil, in the growing of crops and in rural engineering.

Agronomy 1, 2, and 3, are prescribed for all collegiate agricultural students. The succeeding courses are the majors and minors offered to all upper classmen in Agriculture.

Those who elect Agronomy for their major work, may take any one of the following courses in Agronomy:

(a) Regular Agronomy (outlined under courses of Study).
(b) Soils (specialized course).
(c) Crops (specialized course).
(d) Rural Engineering (specialized course).

Students majoring in Agronomy should confer with the head of the Department to arrange for taking any one of the specialized courses named. Liberal elections in other departments are permitted wherever advisable.

DESCRIPTION OF AGRONOMY STUDIES OFFERED.

A. **Soils.** A brief history of the origin of soils; the fertility of soils; the most valuable chemical constituents; their exhaustion and replenishment; the most important physical factors; their deterioration or improvement. The physical components; their relative value and amounts in soil mixtures. Practice in judging the chief soil types of Oregon. The effects upon soils of tillage, manuring, crop rotation, drainage and irrigation.

The Secondary course; first year; first semester; two credits; one recitation; one laboratory period. Sec. 1: Rec. 10-11, F. Lab., 10–12 Th; Sec. 2: 10–11, M. Lab., 10–12 W—Mr. Koeber.

B. **Crops.** A brief consideration of the adaptability, relative value, and best methods of growing the chief cereal, grass, legume and succulent crops of Oregon for grain, pasture, meadow, soiling, silage or seed purposes. Investigation of the sources of crop seed and the importance of seed purity and germinating power, with methods of testing same. Eradication of the most common weed enemies of the field crops.

The Secondary course; first year; second semester; two credits; one recitation; one laboratory period. Sec. 1: Rec. 11-12, W. Lab., 10-12, F.; Sec. 2; Rec. 11-12, Tu. Lab., 10-12, M.—Mr. Koeber.

C. **Elementary Farm Mechanics.** A study of some of the mechanical principles involved in farm operations and their application in labor saving devices for farm work. The structure and uses of the best types of farm machines. The designing and construction of barns, silos, hog houses, sheep sheds. Fencing problems; the division of fields; the location of farm buildings and lanes.

The Secondary course; second year; second semester; two credits; one recitation; one laboratory period.

Rec. 10-11, W. Lab., 10-12 Th.—Assistant Professor Hyslop; Mr. Koeber.

1. **Basic Agronomy.** This course is, of necessity, elementary and general in its nature—an introduction to agriculture—seeking to interest the new student in farm life through first knowledge of the fields, the crops, the mechanics of the farm; or in agriculture as a science, through the wide range for scientific study and investigation it offers, the possibilities in the fields still unexplored; or to interest him in agriculture as a business, through its profits as a practice, and its opportunities as a profession. During the semester, instruction is given in the elementary facts concerning the origin and formation of soils; soil moisture, heat and air; common soil processes, physical and chemical; plant foods and soil fertility; tillage, crop rotation and manuring; important soil bacterial action; the benefits derived from drainage and irrigation; common farm machines, their use and care. The course will close with a brief survey of the agriculture of the State. Instruction will be given through lectures and notes, text and recitation, laboratory, and field observations.

Freshman year; first semester; three credits; two recitations; one laboratory period. Sec. 1; Rec., 8-9, M. W. Lab. 8-10, Tu. Sec. 2; Rec. 9-10, W. F. Lab. 8-10 Th.—Mr. Powers.

2. **Crop Production.** The study of the chief field-crop seeds of Oregon; wheat, barley, oats, corn, vetch, clover, alfalfa, grasses, etc., their vitality, germination, preservation, growth, and reproduction; preliminary judging; seed bed and seeding; climate and soil; culture and rotation; weed enemies, their prevention and eradication; harvesting, marketing, and profits; distribution and value to the State; methods of crop improvement. Class room, laboratory, and field work.

The course in Agriculture; freshman year; second semester; two credits; one recitation; one laboratory period. Sec. 1; Rec. 8-9, M. Lab. 2-4 Th. Sec. 2; Rec. 9-10, M. Lab. 2-4 Tu. —Mr. Powers.

3. **Drainage and Irrigation.** The history of drainage and of irrigation; road, field, and sanitary drainage on the farm; the different systems of drainage and of irrigation; methods of locating, installing, operating, and maintaining drainage and irrigation conduits; cost, efficiency, and profits; the effect on crops and soils; laws governing. Lectures, notes, readings, and field work.

Sophomore year; second semester; three credits; two recitations; one laboratory period. Sec. 1; Rec. 3-4, F. 4-5, M. Lab. 2-4 M. Sec 2; Rec. 2-3, F. 4-5 W. Lab. 2-4 W. Sec. 3; Lab. 4-6, Th.—Mr. Powers and Mr. Koeber.

4. **Soil Physics.** Advanced study of the geology of soils —origin, formation, composition, and classification. Soil moisture and fertility, and their conservation. The various physical processes of the soil—surface tension, osmosis, capillarity, diffusion, etc. The effects of the various crops and the different methods of culture upon the texture, aeration, temperature, moisture, and plant food supply of the soil, and the resulting alteration in crop producing power. The influence of washing, drainage, and irrigation upon soils. Work in the laboratory will consist of the determination and comparison of such physical properties in the various soil types as, specific gravity, water retention, capillarity, organic content, etc.; the effect of mulches, rotations, and cropping; soil sampling and judging; the mechanical analysis of soils.

The courses in Agronomy and Animal Husbandry; junior year; second semester; five credits; three recitations; two laboratory periods. Rec. 9-10, M. W. F. Lab. 2-4, M. W.—Assistant Professor Hyslop.

5. **Cereal Crops.** A study of grains with special reference to those of Oregon and the varying conditions of soil and climate under which they are grown; the culture and rotation best adapted to each; the various methods of harvesting and storage; the judging of grain; grading for market; markets and uses of each crop; improvement of crop seed; plant breeding.

Junior year; first semester; five credits; three recitations; two laboratory periods. Rec. 9-10, M. W. F. Lab. 2-4, M. W. —Assistant Professor Hyslop.

6. **Forage Crops.** A less technical study of the legumes, grasses and succulent crops, the course being especially adapted to the needs of the students in Animal and Dairy Husbandry. The adaptability and value of each of the forage plants as pasture, hay, soiling, or silage crops, together with the practical methods of growing each and the planning of rotations that will maintain fertility, will be fully discussed.

The course in Animal Husbandry; junior year; first semester; two credits; two recitations. Rec. 8-9, T. T.—Assistant Professor Hyslop.

7. **Crop Improvement.** A course dealing with the practical problems in the improvement of the quality and yield of the more important field crops, a knowledge of which would be necessary for the successful Oregon crop growers, especially those engaged in seed production. The different systems of breeding and the general principles of selection will be briefly discussed, and the best planting and culture methods for the breeding plots studied. The work will be largely in the laboratory and field.

Junior year; second semester; three credits; one recitation; two laboratory periods. Rec. 4-5, Th. Lab. 2-6, F.—Assistant Professor Hyslop.

8. **Farm Mechanics.** A study of the principles and practice having to do with draft in farm operations. Construction and use of modern field machinery for tillage, seeding, and harvesting operations and of farm pumps, wells, windmills, and stationary engines. Largely laboratory work in examining, setting up, testing and operation of the field machines named.

Junior year; first semester; three credits; one recitation;

two laboratory periods. Rec. 8-9, M. Lab. 2-6, F.—Assistant Professor Hyslop, Mr. Koeber.

9. **Farm Power Machinery.** The construction and operation of the more complicated machines used for threshing, grinding, cutting ,etc., and comparative study of the different types of farm engines, both stationary and traction. Engine troubles, engine efficiency, and cost of operation, will be given attention.

Junior year; second semester; three credits; one recitation; two laboratory periods. Rec. 9-10, Tu. Lab. 2-4, T. T.—Assistant Professor Hyslop, Mr. Koeber.

10. **Farm Structures.** Farm buildings, fences, and roads. The design and construction of farm houses, barns, granaries, and silos; their arrangement and cost. The various kinds of fencing; cost, construction and quality. Road building and maintenance and cost of same. The laboratory will include practical work in concrete construction and the drawing of building plans and specifications.

Elective; junior year; first semester; three credits; one recitation; two laboratory periods. Rec. 11-12, M. Lab. 10-12, Th. F.—Mr. Powers.

11. **Weed Eradication.** A course designed for those specializing in crop production, dealing with methods of extermination of the more noxious or persistent weeds common to the United States and particularly Oregon.

Elective; junior or senior year; first semester; one credit; one recitation. Hours to be arranged.—Professor Scudder.

12. **Climatology.** Practical meteorology; observing and recording local weather and forecasting; a study of the climate of Oregon and the effect of climate upon agriculture; class room and laboratory work.

Elective; junior or senior year; second semester; one credit; one laboratory period. 4-6, Tu.—Mr. Powers.

13. **Irrigation Farming.** Methods of obtaining, distributing, and conserving irrigation waters. Handling of different crops under irrigation. Cost and profits thereof and duty of water in various districts of Oregon. Water rights and irrigation codes. Field and laboratory studies of irrigable qualities of different soils, laying out of irrigation systems, and field examination of some of the largest projects in the State.

Elective; junior or senior year; first semester; three credits;

two recitations; one laboratory period. Prerequisite: Agronomy 4. Hours to be arranged.—Mr. Powers.

14. **Dry Farming.** A study of the principles of moisture conservation. Special tillage methods and machinery. Dry farming crops and rotations. Occurrence and phases of the industry in Oregon and field excursions to the dry farming section.

Elective; junior or senior year; second semester; three credits; one recitation; one laboratory period. Prerequisite: Agronomy 4. Hours to be arranged.—Professor Scudder.

15. **Farm Motors and Power Machinery.** Investigation of the latest improvements and possibilities of the motors and power machinery used on the modern farm. Comparative tests for cost of operation and efficiency of farm stationary and traction engines and power machines. Manufacture and use of electricity on the farm. Operation of farm irrigation pumping machinery, etc.

Elective; senior year; first semester; three credits; one recitation; two laboratory periods. Prerequisite: Agronomy 8 and 9. Hours to be arranged.—Assistant Professor Hyslop, Mr. Koeber.

16. **Drainage Engineering.** A study of drainage problems and conditions in the field. The actual surveying, laying out, drafting of plans, estimation of cost and installation of drainage systems, at different points in the State is required of students taking this course. A complete report for and of the organization of a drainage district is prepared by each class.

Elective; senior year; second semester; three credits; one recitation; two laboratory periods. Prerequisite: Agronomy 4. Hours to be arranged.—Mr. Powers.

17. **Agrostology.** A study of the grasses, legumes, and other forage crops. Methods of seeding for meadow, pasture, and soiling crops; maintenance of meadows and pastures; harvesting, curing, storing, baling, and using the various meadow crops; grazing, siloing, and soiling. The comparative structure and identification of the different forage plants; their adaptability to different conditions of soil and climate. Examination of commercial seed for viability and purity. The identification of weed seed. The production of forage crop seed.

Elective; senior year; first semester; five credits; three recitations; two laboratory periods. Rec., 11-12, M. W. F. Lab., 2-4, M. W.—Assistant Professor Hyslop.

18. **Advanced Crop Breeding.** A study of the laws, theories, and known facts concerning heredity, variation and evolution in plant life. The causes of variation, behavior of characters in transmission and the possibilities of inducing stability of character and establishing desirable types, will be discussed with special reference to field crop improvement.

Senior year; second semester; three credits; three recitations. Prerequisite: Agronomy 7. Hours to be arranged.—Professor Scudder.

19 **Soil Fertility.** The effect of the various crops upon the fertility of the soil. The maintenance or improvement of fertility by the use of fertilizers and manures. The composition and value of the different fertilizers and manures. The effect of different rotations upon fertility. The fertility of the different types of Oregon soils; their plant food requirements and comparative values; methods of improvement of each. The effects of different systems of farming. Analysis, field plot, wire basket, and pot culture investigations.

Elective; senior year; first semester; five credits; three recitations; two laboratory periods. Rec. 10-11, M. W. F. Lab., 2-4, T. T.—Professor Scudder, Assistant Professor Hyslop.

20. **Farm Management.** A study of the various systems of extensive, intensive, and mixed farming, and the conditions under which each prospers or fails; methods of successful farmers; the application of business methods to farm operations; farm capital; farm labor; economic management of fields, stock, structures, crops, and machines; markets and marketing; relation of farming to other industries.

Elective; senior year; second semester; five credits; five recitations. 10-11 daily.—Professor Scudder.

21. **Agronomy Seminar.** The preparation and discussion of papers or demonstrations on subjects of especial Agronomic interest. Inquiry into the development of different phases of the science at home and abroad. Fortnightly meetings open to all agricultural students.

Required of juniors and seniors in Agronomy; second semester; one credit. Hours to be arranged.—Professor Scudder.

22. **Advanced or Thesis Work.** This course embraces all advanced work of any kind in any branch of Agronomy that

the individual student wishes and is fitted to pursue further than is possible in the courses offered above. It is especially designed to meet the needs of senior and graduate students in Agronomy, as preparation for positions as farm managers, or machine experts, or for the Government, agricultural college, or experiment station service. The subjects which this course offers for advanced study and investigations are:

a. Soils; mechanical analysis, soil surveying, soil fertility problems.

The advanced student specializing in soils may study the various soil types of Oregon through mechanical analysis, and other physical tests; may undertake field work in soil surveying and maping; or, through wire basket, pot culture, and field plot tests, may determine the effects of various systems of cropping, or fertilizing, or of soil bacteria, upon soil fertility.

b. Crop Production; special crops, field experimentation, plant breeding.

In this subject, a complete study may be made of some special crop in which the student is interested or on which information is lacking. Methods of field experimentation may be compared and carried out; or plant breeding theories and their practical use in commercial seed production may be made the subject of investigation.

c. Farm Mechanics; farm power machinery, harvesting machinery, rural architecture, concrete work, road and fence construction, drainage engineering.

For the student with inclinations toward mechanics or engineering, a wide field is offered in advance work in testing the efficiency and cost of running various types of farm power machines and engines; or of becoming an expert on harvesting machinery; or he may specialize in the designing of a complete series of farm buildings; or do a half year's practical work in drainage engineering, working out a system for some given area.

d. Farm Management; farming systems, irrigation farming, dry land farming, rural economics.

In this branch of Agronomy there is a rapidly growing demand for men of special knowledge concerning the methods of crop production under the two extremes of soil moisture conditions found in irrigation farming and dry land farming.

Special attention is given in these two courses to their application to Eastern Oregon conditions.

Elective; senior or graduate year; first or second semester, or both; one to five credits. Hours to be arranged.—Professor Scudder.

ANIMAL HUSBANDRY.

Professor Withycombe.
Assistant Professor Potter.
Mr. Samson.

The object of the course in Animal Husbandry is to fit the student for the actual rearing of live stock on the farm so that he may raise the highest grade of stock in the most economical manner. The student is thoroughly grounded in the underlying principles so that he may successfully continue his study after he leaves school, but the practical details are thoroughly discussed and a special effort is made to keep the student in close touch with the financial phases of the live stock industry. Students who make this work their specialty are not expected to devote their entire time to live stock but are to familiarize themselves with the production of the common farm crops, maintenance of the fertility of the soil, and the handling of farm machinery and like topics; so that when they graduate, they will be equipped for practical farm work.

Scientists and practical farmers are agreed that the fertility of the soil cannot be maintained economically, if at all, without live stock. The rearing of live stock requires more skill and knowledge than grain or hay farming, and while the profits are much larger when the business is properly handled, there is also more danger of a loss due to improper management or ignorance; hence the necessity of a thorough training before embarking in this line of work.

Th following courses are offered:

A. **Stock Judging. I.** A study of animal form by score practice and comparative judging. The student is given an understanding of various points to be considered in judging cattle, sheep, swine, and horses. The work consists almost exclusively of actual practice with the animals at the barns.

The Secondary course; first year; first semester; two credits; two laboratory periods. Sec. 1: 10-12, M. W.; Sec. 2: 10-12, Tu. F.—Mr. Samson.

B. **Veterinary Science.** A study of the treatment and prevention of the common diseases of farm live stock. Special attention is given to sanitation and the prevention of diseases.

The Secondary course; second year; first semester; one credit; one recitation. 2-3 M.—Mr. Samson.

C. **Practical Stock Feeding.** A study of the elementary principles of stock feeding. The various feed stuffs obtainable in Oregon are discussed and compared as to their value for the different kinds of stock. Some time is devoted to the different methods of preparing the feed and the various systems of feeding.

The Secondary course; second year; second semester; three credits; three recitations. 2-3, M. W.—Mr. Samson.

1. **Stock Judging.** II. The various types of farm animals are studied by the score card method and by comparative judging. Practically the entire time is devoted to studying the animals at the barns. The student is made familiar with the desirable types of cattle, sheep, swine, and horses.

Freshman year; second semester; two credits; two laboratory periods. Sec. 1: 8-10, T. T.; Sec. 2: 8-10, M. W.—Mr. Samson.

2. **Live Stock Management.** A careful study of the practical details of the care and management of live stock; stabling; grooming; sanitation; practical feeding, and kindred details of live stock farming.

Sophomore year; second semester; three credits; two recitations; one laboratory period. Sec. 1 and 2: Rec. 8-9, M. W. Sec. 1: Lab. 4-6, F. Sec. 2: Lab. 8-10, F.—Assistant Professor Potter.

3. **Breeds of Stock.** I. The study of the history of the various breeds of cattle and sheep, their origin and characteristics. Each breed is taken up and studied separately from its early history. The environment under which they were produced, the original stock, and the men who were instrumental in establishing the breed are given careful consideration, as well as the present states of the breed and the work of present day breeders. The leading families or strains and the most prominent animals are discussed in detail. The lecture work is accompanied by comparative judging in which special

attention is given to breed type and to the differences in conformation of the various breeds.

Junior year; first semester; four credits; three recitations; one laboratory period. Rec. 2-3, M. Tu. W. Lab. 2-4, Th.—Mr. Samson.

4. **Breeds of Stock.** II. The study of the breeds of horses, swine, and dairy cattle. A continuation of A. H. 3.

Junior year; second semester; four credits; three recitations; one laboratory period. Rec. 10-11, M. W. F. Lab. 10-12, Th. —Mr. Samson.

5. **Live Stock Marketing.** The study of the various problems of marketing live stock; preparation of stock for market; shipping; market grades and classes; market terms and reports; together with a detailed study of the leading markets open to the farmers of Oregon.

Junior year; first semester; three credits; three recitations. 2-3, Tu. W. F.—Assistant Professor Potter.

6. **Principles of Breeding.** The study of the principles of breeding as related to the development of our domestic animals. Among the topics discussed are variation, transmission of variations and modifications, fecundity, in-an-in breeding, crossing, and like topics. Some time is devoted to the study of pedigrees and to the methods of registration employed by the various breeds associations.

Prerequisite: At least one semester of Zoology.

Senior year; first semester; five credits; five recitations. 8-9 daily.—Mr. Samson.

7. **Principles of Stock Feeding.** The study of the chemical and physiological principles of animal nutrition including digestion, assimilation, metabolism and also the composition of feed stuffs and the function of the various classes of compounds found in feed stuffs in the animal body. Special attention is devoted to the study of nutritive ratios, feeding standards, compounding rations, and the general significance of the chemical composition of the feeds.

Prerequisite: Chemistry 10 and 11.

Senior year; first semester; two credits; two recitations. 9-10, W. F.—Assistant Professor Potter.

8. **Beef Production.** A study of the feeds and methods of feeding adapted to the production of beef. Special attention

is given to the results obtained in the tests conducted by the various experiment stations.

Prerequisite: A. H. 8.

Senior year; first fifth of the second semester; one credit; five recitations. 10-11 daily.—Assistant Professor Potter.

9. **Mutton and Wool Production.** A study of feeding for the production of mutton and wool as in A. H. 9.

Prerequisite: A. H. 8.

Senior year; second fifth of the second semester; one credit; five recitations. 10-11 daily.—Assistant Professor Potter.

10. **Pork Production.** A study of the methods of feeding for pork production as in A. H. 9.

Prerequisite: A. H. 8.

Senior year; third fifth of the second semester; one credit; five recitations. 10-11 daily.—Assistant Professor Potter.

11. **Milk Production.** A study of feeding for the production of milk, as in A. H. 9.

Prerequisite: A. H. 8.

Senior year; fourth fifth of the second semester; one credit; five recitations. 10-11 daily.—Assistant Professor Potter.

12. **Horse Feeding.** A study of practical horse feeding, as in A. H. 9.

Prerequisite: A. H. 8.

Senior year; last fifth of the second semester; one credit; five recitations. 10-11 daily.—Assistant Professor Potter.

13. **Research Work.** In this course the student is expected to select some line for individual investigation either by library methods or otherwise. The object is partly to allow the student to study some particular line in which he is especially interested and partly to give him training in studying out problems for himself as he will have to do after leaving school. This course is open only to those who are taking Animal Husbandry as their major or who have taken practically all of the regular courses in Animal Husbandry.

Elective; senior year; second semester; credits according to arrangement. Hours to be arranged.—Assistant Professor Potter.

14. **Animal Husbandry Literature.** A study is made of the various books, periodicals and bulletins pertaining to Animal Husbandry. The student is made familiar with the leading books and information which he may obtain from those

sources. A special study is made of the periodicals dealing with live stock, their standing, influence, and the part of the country and kind of farming to which they are best adapted. Some attention is given to the bulletins of the state stations and of the U. S. Department of Agriculture; methods of obtaining these bulletins and where and how to obtain any desired information. The student cannot be expected to read all the available material along Animal Husbandry lines but rather to become familiar with the various sources of information, so that when any particular question arises, he will know at once the books, periodicals, or bulletins that will give him the most authoritative information on that subject.

Elective; senior year; first semester; three credits; three recitations. 4-5, M. W. F.—Assistant Professor Potter.

17. **Advanced Stock Judging.** This course consists of practical judging of all kinds of stock with an occasional visit to surrounding fairs and stock farms.

Open only to students who have completed all the other courses in judging offered.

Senior year; second semester; two credits; two laboratory periods. 2-4 T. T.—Assistant Professor Potter.

18. **Seminar I.** Semi-monthly meetings are held in which papers on Animal Husbandry subjects are read and discussed. These papers are prepared under the supervision of the department, although considerable latitude is allowed in the selection of subjects and the manner of presentation.

Elective in junior and senior years; first semester; one credit. 9-10 M.—Mr. Samson.

19. **Seminar II.** This is a continuation of course 18.

Second semester; one credit. 2-3, F.—Mr. Samson.

DAIRY HUSBANDRY.

Professor Kent.
Mr. Simpson.

It is the purpose of the department of Dairy Husbandry to effect an improvement in the dairy industry, for which a large part of the State is so well fitted. More cows and better ones, as well as more and better dairy products, is the ultimate aim of the instruction and the experimentation carried on by this department.

In order to meet the needs of the industry and the demand for information, the department offers the following courses:

The four-year course, designed to qualify students for agricultural college and experiment station work, for inspectors of dairy products and dairy establishments in city, State, or Government service, or as managers of creameries or large dairy farms;

The six-week course, designed to fit students to become operators of creameries, cheese factories, and dairy farms.

Besides these courses, dairy instruction will form a portion of the work offered to students in the Secondary course in Agriculture, also to students in Domestic Science and Art.

The laboratories for the technical work in dairying are located on the first floor of Science Hall, and comprise a main work-room for butter and cheese making, a milk testing laboratory, boiler and engine room, cheese-curing and storage rooms, class room and office. A large variety of cream separators gives the student an opportunity to judge of the respective merits of the leading machines of this class now on the market. Churns, pasteurizer, testers, and other apparatus, all in practical operation, are at hand for purposes of instruction.

The dairy wing of the new college barn has accommodations for thirty cows, being equipped with the Drown iron stall, cement floors and mangers, and drainage to permit of thorough and rapid cleaning with water when desirable. There are also boiler, storage and separating rooms, comprising an aggregate floor space 16x33 feet.

The dairy herd, which is used for experimental and demonstration purposes, consists of typical representative animals of the leading dairy breeds, including the Jersey, Guernsey, Holstein, Ayrshire, and the milking type of Shorthorn.

One of the largest commercial creameries in the State is located at Corvallis, an opportunity thus being presented for the study of manufacturing problems as they exist under every-day creamery conditions.

The following courses are offered:

A. **Farm Dairying I.** A general study of he secretion, composition, and adulteration of milk; methods of separation, determination of fat, ripening of cream, churning, and preparing butter for the market.

The Secondary course; first year; second semester; two credits; one recitation; one laboratory period. Sec. 1: Rec. 10-11, W., Lab. 10-12, T.; Sec. 2: Rec. 10-11, Tu., Lab. 10-12, F.—Mr. Simpson.

B. **Farm Dairying II.** Additional work along lines indicated in Course A; farm cheese making; operation of milking machines, and other dairy machinery; herd records.

The Secondary course; second year; first semester; two credits; one recitation; one laboratory period. Sec. 1: Rec. 10-11, M., Lab. 10-12, F.; Sec. 2: Rec. 10-11, M., Lab. 10-12, Th.—Mr. Simpson.

1. **Milk and Cream Testing.** A study of the Babcock test as applied to milk and cream, and other milk products; the use of Farrington's and Mann's acidity tests; fermentation tests; use of the lactometer; composite sampling and testing.

Sophomore year; first semester; two credits; one recitation; one laboratory period. Sec. 1: Rec. 2-3, F., Lab. 2-4, M.; Sec. 2: Rec. 3-4, F., Lab. 2-4, W.—Professor Kent.

2. **Advanced Butter Making.** A study of the physical and chemical properties, composition and separation of milk; effect of different degrees of acidity of cream upon the resulting butter; the principles of churning, packing and marketing butter; and the operation of churns and separators.

Required of students electing Dairy Husbandry as a major; junior year; first semester; five credits; three recitations; two laboratory periods. Rec. 9-10, T. T., 11-12, M., Lab. 10-12, Tu. W.—Mr. Simpson.

Prerequisites: Course 1; Chemistry 10, 11.

3. **Cheese Making.** A study of the importance of the

quality and composition of milk in the manufacture of Cheddar cheese; the principles involved in setting, cutting, heating, milling ,etc.; special shapes and sizes; the construction and ventilation of curing rooms.

Required of students electing Dairy Husbandry as a major; junior year; second semester; three credits; two recitations; one laboratory period. Rec. 11-12, Tu. W., Lab. 10-12, M.—Mr. Simpson.

Prerequisites: Course 1; Chemistry 10, 11.

4. **Research Work.** A study of the various authorities on dairying, together with the work of Experiment Stations along the same line. Some original investigation will aiso be included in this course.

Required of students electing Dairy Husbandry as a major; senior year; first semester; two credits. Hours to be arranged.—Professor Kent.

Prerequisites: Courses 1, 2; Chemistry 10, 11.

5. **Factory Management.** Consists of location, organization, construction, drainage, and ventilation of creameries and cheese factories; creamery refrigeration, and general management. The object of this course is to fit the student to superintend or manage large factories or other dairy establishments.

Required of students electing Dairy Husbandry as a major; senior year; first semester; three credits; recitations, and inspection of dairy establishments. Rec. 11-12, T. T. F.—Professor Kent.

Prerequisites: Same as for course 4.

6. **Technology of Milk.** A study of the utilization of milk and its products, such as the preparation of condensed, certified, modified, and hygienic milk, milk sugar, casein; and the food value of milk and its products.

Required of students electing Dairy Husbandry as a major; senior year; second semester; two credits; two recitations. Rec. 11-12, M. Th.—Professor Kent.

Prerequisites: Courses 1, 2; Chemistry 10, 11.

7. **Dairy Herd Management.** Best methods of feeding for milk production; principles governing the construction of stables, stalls, and ties; systems of keeping, feeding, breeding, and milk production records; manner of disposal of milk produced; rearing the dairy calf; selection and care of bulls.

Elective for students in Dairy Husbandry, Animal Husbandry, and Agronomy; senior year; second semester; two credits; two recitations. Rec. 9-10, M. W.—Professor Kent.

8. **Preparation of Ice Cream and Ices.** A study of the preparation of ice cream, sherbets, and ices, made on a private or commercial scale.

Elective; senior year; second semester; one credit; recitations and laboratory. 8-10, F.—Mr. Simpson.

Prerequisite: Course 1.

9. **Thesis.** Original work on some dairy subject may be worked out in co-operation with the departments of Chemistry, Bacteriology, or Animal Husbandry. Students should consult the head of the Dairy Department concerning thesis subject not later than the beginning of their senior year.

Required of students electing Dairy Husbandry as a major; senior year; second semester; two credits.

10. **Home Dairying.** A study of the secretion, composition and characteristics of milk; methods of separation; care of milk and cream; preparation of ice cream and ices.

Elective in the course in Domestic Science and Art; second semester; two credits; recitations and laboratory. Hours to be arranged.—Professor Kent.

Dairy Husbandry students will be required to take laboratory work in Agricultural Chemistry, second semester, junior year, said subject being allowed on credits for major study. It is recommended that such students carry this subject throughout the junior year.

11. **Short Course.** Students passing the work required in the six-week course will receive a Dairy Certificate after one season's subsequent employment in a creamery or cheese factory, provided their monthly reports to the Dairy Department are made as required, and that the condition of the factory upon personal inspection by a representative of the department, is found in a satisfactory condition. (See Winter Courses.)

HORTICULTURE.

Professor Lewis.
Associate Professor Gardner.
Assistant Professor Bouquet.
Assistant Professor Kraus.
Mr. Rees.
Mr. Flint.
Mr. Brown.
Mr. Bradford.
Mr. Speidel.
Mr. Tooley.
Mr. Gilkey.
Mr. Masterton.

The scope of the work in Horticulture is very broad, giving instruction in Pomology, Olericulture, Floriculture, Landscape Gardening, and School Gardening. In these courses the student is first thoroughly grounded in the fundamentals and is then allowed to specialize as he may desire. Thus, he may fit himself for station or Government work, or enter the many lines in business open to him, such as fruit growing, truck gardening, floriculture, or landscape gardening, for in all these lines are splendid opportunities throughout the Pacific Northwest. At the present time there are openings for young men to become managers of orchards or to develop fruit lands for outside investors; those having a taste for teaching, can find a broad field in college or rural work or as supervisors of horticulture. The required work for students electing Horticulture covers a wide range, giving the student a thorough training not only in plant propagation and the general principles of orchard management and vegetable growing, but in floriculture and landscape gardening as well, thus broadening his views and interesting him in the aesthetic and all that pertains to more beautiful surroundings.

The courses consist of lectures, reference readings, field exercises, and laboratory work. Much stress is placed upon the practical phases of all the work. In all courses horticultural truths are illustrated by practice whenever possible. Students are given field and laboratory exercises in all such phases as planting, seeding, budding, grafting, cultivating, thinning, pruning, harvesting, and packing.

Well equipped laboratories and class rooms, orchards containing many varieties of fruit, vegetable gardens, a large campus well supplied with ornamental shrubbery, forcing-houses, and a good reference library, are some of the features enabling the department to offer thorough courses.

The following courses are offered:

A. **Elementary Orchard Practice.** A course dealing with the first principles of fruit growing, in which the practical phases are emphasized, stress being laid on such phases of orcharding as harvesting, packing, pruning, spraying, establishing of orchards, and the essentials of small fruit culture.

The Secondary course; first year; first semester; two credits; one recitation; one laboratory period. Sec. 1: Rec. 11-12, F., Lab. 10-12, Tu.; Sec. 2: Rec. 11-12, M., Lab. 10-12, Th.—Mr. Speidel.

B. **Elementary Orchard Practice and Vegetable Gardening** In this course the requirements of the Secondary student are kept in mind, the work leading up to more advanced course in the freshman and sophomore years. The propagation of th common plants used in horticulture is studied; and practical laboratory exercises are given in the planting of seed, making of cuttings, and the ordinary methods of budding and grafting. The last part of the semester is devoted to a study of the first principles of vegetable gardening.

The Secondary course; first year; second semester; two credits; one laboratory period. Sec. 1: Rec. 11-12, M., Lab. 10-12, Tu.; Sec. 2: Rec. 11-12, W., Lab. 10-12, Th.—Mr. Speidel.

1. **Plant Propagation.** This course consists of a very thorough study of the propagation of plants used in horticulture, including a study of soils used in nursery and seed bed; seeding and transplanting; multiplying of plants by separation and division, soft and hard wood cuttings, layerings, and many forms of budding and grafting. The greenhouses laboratories, orchards, and campus offer splendid opportunities and furnish abundant material for practical work.

Freshman year; second semester; two credits; one recitation; one laboratory peried. Sec. 1, Rec. 11–12, F., Lab. 2–4.

F.; Sec. 2: Rec. 10-11, M., Lab. 4-6, Tu.—Mr. Speidel and Mr. Tooley.

2. **Orchard and Garden Practice.** Problems concerning the home orchard and garden are dealt with in this course, the aim being to give those students who cannot further pursue a horticultural course, the necessary training to develop ideal home orchards and gardens; at the same time the work is fundamental for students desiring to pursue horticultural studies further. The common orchard and garden problems such as selecting a site, setting and cultivating the orchard and garden, pruning, spraying, and choosing varieties, are considered.

Sophomore year; first semester; three credits; two recitations; one laboratory period. Sec. 1: Rec. 9-10, W. F., Lab. 2-4, Th.; Sec. 2: Rec. 9-10, W. F., Lab. 2-4, Tu.—Mr. Speidel and Mr. Tooley.

3. **Floriculture. I.** An elementary course in the cultivation of greenhouse and home plants and of the common annuals and perennials used in outdoor work. The course is designed to broaden the views of those students who are unable to take advanced courses in Floriculture, and to make them more useful citizens.

Required of Agricultural juniors electing Horticulture as a major; first semester; two credits; one recitation; one laboratory period. Rec., 8-9 F., Lab. 10-12, Tu.—Mr. Flint.

4. **Landscape Gardening.** All students should be interested in everything that pertains to the decoration of the home, the improvement of school grounds, the beautifying of streets, and the establishment of recreation grounds and parks. In this course the general principles of landscape gardening are so treated as to apply to the upbuilding of the aesthetic in every-day life.

Required of Agricultural juniors electing Horticulture as a major; second semester; two credits; one recitation; one laboratory period. Rec. 4-5, M., Lab. 10-12, Tu.—Mr. Flint.

POMOLOGY

11. **Practical Pomology.** Especially offered for those students desiring training in commercial orcharding; deals largely with problems connected with the growing and handling of our leading fruits. Such problems as choice of soil, culti-

vation, irrigation, use of cover crops, thinning, proper varieties and best methods of orchard management will be thoroughly studied. This is purely a lecture course, the laboratory work being offered in courses 6 and 7.

Elective; junior year; first semester; three credits; three recitations. 9-10, M. T. T.—Professor Gardner.

12. **Orchard Practice I.** A Saturday morning course, dealing only with the practical phases of orchard management. The various orchard problems, such as harvesting, packing, pruning, spraying, and the handling of small fruits, are taken up according to season. Every student beginning this work is required to become familiar with fruit packing to the extent that he can put up a first-class box of fruit. Students especially proficient will be allowed to take up outside work for remuneration under departmental supervision.

This course is open only to juniors and seniors electing Horticulture as a major; two credits; two laboratory periods. 8-12, Saturday.—Mr. Speidel, Mr. Tooley.

13. **Orchard Practice II.** This is a continuation of course 6.

Elective; junior and senior years; second semester; two credits; two laboratory periods. Rec. 8-12, Saturday.—Professor Gardner, Mr. Speidel, Mr. Tooley.

14. **Orchard Practice III.** This course is open only to students majoring in Horticulture, Entomology, and Botany..

Elective; junior year; first semester; two credits; two laboratory periods. Hours to be arranged.—Professor Gardner, Mr. Speidel and Mr. Tooley.

15. **Grape Growing.** A special course in Viticulture, devoted to the best methods of growing, harvesting, and packing the American and European types of grapes. Such phases as exposure, elevation, soils, use of resistant stock, pruning, harvesting, packing, shipping, and storing are included. The manufacture of by-products will also be treated.

Elective; junior year; first semester; two credits; two recitations. Rec. 8-9, T. T.—Professor Gardner.

16. **Small Fruit Culture.** In this course a study is made of the problems concerned with the growing and marketing of such fruits as the strawberry, currant, gooseberry, raspberry, blackberry, loganberry, and cranberry. A large collection of

small fruits in the college orchard aids materially in the study.

Elective; junior year; second semester; three credits; two recitations; one laboratory period. Rec. 4-5, W. F., Lab. 10-12, W.—Mr. Speidel.

17. **Nut Culture.** Nut culture is becoming a very important branch of Horticulture. In this course a special study will be made of the culture of such nuts as the walnut, filbert, almond, pecan, and the peanut. Instruction is very largely by lectures on the special adaptability of the Pacific Coast to nut culture. Laboratory periods will be given on most successful methods of grafting nuts.

Elective; junior year; second semester; two credits; one recitation; one laboratory period. Rec. 9-10, M., Lab. 10-12, Th.—Professor Gardner.

18. **Systematic Pomology.** The description, nomenclature, and classification of native and sub-tropical fruits and nuts is studied. In addition, training is given in judging and displaying fruits. Special stress will be laid on the variation of fruits caused by soil, elevation, etc. For this study fruits will be collected from the various parts of the State.

Elective; senior year; first semester; three credits; one recitation; two laboratory periods. Rec. 10-11, M., Lab. 10-12, Tu. W.—Professor Gardner.

19. **Commercial Pomology.** This course deals with the problems of marketing fruits, methods of packing, transportation, and storage, the building of packing and storage houses. A study of associations as a factor in the handling of fruit, of market requirements, and of the handling of by-products, makes this course decidedly valuable.

Elective; senior year; first semester; two credits; two recitations. 9-10, M. W.—Professor Lewis.

20. **Seminar I.** This is a course especially arranged for senior and graduate students in Horticulture. A study is made of some of the advanced problems. Articles from the leading magazines on horticultural subjects, also station and Government publications are reviewed. A course of lectures and class drill is given in outlining and conducting experiments and investigations.

Required of Agricultural seniors and advanced students having their major in Horticulture; first semester; one credit. 4-6, M.—Professor Lewis.

21. **Seminar II.** Required of Agricultural seniors and advanced students having their major in Horticulture.

Senior year; second semester; one credit. Rec. 4-6, M.—Professor Lewis.

22. **History and Literature of Horticulture.** A study is made of the literature and history of Horticulture from the time of the Egyptians to modern times.

Elective; senior year; first semester; two credits; two recitations. Hours to be arranged.—Professor Lewis.

23. **Plant Breeding.** This course embraces a study of the theories as related to plant breeding, and their application to the practical aspects of the work, such as cultivation, selection, acclimatization, hybridizing, and pollination. Lectures, reference reading, and practical problems given in laboratory and field. Juniors electing this course begin orchard and garden investigation and plant breeding that can be continued during the senior year.

Elective; junior and senior years; second semester; three credits; two recitations; one laboratory period. Rec. 8-9, Tu. F., Lab. 8-10, Th.—Professor Gardner.

24. **Advanced Plant Breeding.** Largely a laboratory course in greenhouses, orchards, and gardens. Open only to students who have completed Horticulture 17. Practical problems of plant breeding studied in course 17 will be continued in this course.

Senior year; second semester; three credits; one recitation; two laboratory periods. Rec. 11-12, W., Lab. 10-12, M. Tu.—Professor Gardner.

25. **Sub-Tropical Pomology.** A study of the culture of such sub-tropical fruits as oranges, figs, and olives.

Elective; senior year; second semester; two credits; two recitations. Hours to be arranged.—Professor Lewis.

26. **Advanced Pomology.** This is in the nature of a finishing course in Pomology. It will include a series of examinations covering the subject of Pomology to test the student's knowledge of this subject. A series of lectures dealing with advanced problems concerned with such subjects as fruit soils, pruning, orchard fertility, pollination, irrigation, and a review of the past season's market reports and the lessons they

teach; the latest development of Horticulture as shown in bulletins, reports, etc. This course will include many discussions on vital topics concerning Horticulture.

Elective; senior year; second semester; three credits; three recitations. 9-10, M. W. F.—Professor Lewis.

VEGETABLE GARDENING.

Students taking their major in this course are required to take Horticulture 3, 4, 33.

31. **Principles of Vegetable Gardening.** In this course a study is made of the history and botanical relationship of vegetables, problems of vegetable soils and locations, tillage, crop successions, and rotations, irrigation, application of manures, and commercial fertilizers, seeds and seed sowing, transplanting, construction and operation of hot beds, implements, capital and labor, and other vital problems connected with the proper handling of a vegetable garden. Lectures supplemented by field exercises.

Elective; junior year; first semester; three credits; two recitations; one laboratory period. Rec. 2-3, Tu. Lab. 2-4, Th.—Mr. Bouquet.

32. **Forcing Vegetables. I.** A course dealing with the problems connected with the forcing of such vegetables as lettuce, cucumbers, tomatoes, rhubarb, and melons, in cold frames, hot-beds, and greenhouses. Lectures and exercises in the greenhouses.

Elective; senior year; second semester; two credits; one recitation; one laboratory period. Rec. 10-11, F., Lab. 10-12, W.—Mr. Bouquet.

33. **Forcing Vegetables. II.** Continuation of course 22.

Elective; senior year; first semester; two credits; one recitation; one laboratory period. Hours to be arranged.—Mr. Bouquet.

34. **Systematic Olericulture.** Description, nomenclature, and classification of vegetables. Exercises are given in displaying and judging vegetables.

Elective; senior year; first semester; one credit; one laboratory period. Hours to be arranged.—Mr. Bouquet.

35. **Truck Gardening.** Only the purely commercial aspects of vegetable gardening are offered in this course. Such phases as capital, labor, rotation, tools, harvesting, and storing, will

be considered, as well as other problems involved in the growing of vegetables on an extensive scale for market or cannery. Attention is also paid to a study of vegetable markets and methods of marketing.

Elective; senior year; first semester; three credits; two recitations; one laboratory period. Rec. 8-9, T. T., Lab. 8-10, F.—Mr. Bouquet.

36. **Commercial Truck Gardening.** A continuation of course 25.

Elective; senior year; three credits; two recitations; one laboratory period.

37. **Practical Vegetable Growing.** This course is especially designed for those who are specializing in vegetable growing and for those who wish to obtain knowledge concerning the most practical methods of growing all the important market garden crops. The work will consist largely of practicums in field and greenhouse supplemented by lectures; and all commercial garden crops will be handled from seed time onwards in such a way as to give the student a thorough working knowledge of growing leading vegetable crops.

Elective; junior year; second semester; three credits; two lectures; one laboratory period. Hours to be arranged.— Mr. Bouquet.

LANDSCAPE GARDENING.

Students taking their major in Landscape Gardening are required to take Horticulture 3, 4, History of Architecture, Plane Surveying 1, Topographical Surveying 5, Mechanical Drawing 1, and Drawing 1.

41. **Annuals and Perennials. I.** A study of the culture and value of the hardy annuals and herbaceous perennials, and their use in Floriculture. Horticulture I is a prerequisite of this course required of those taking Landscape Gardening as a major.

Elective; junior year; first semester; three credits; one recitation; two laboratory periods. Hours to be arranged.— Mr. Flint and Mr. Masterton.

42. **Annuals and Perennials. II.** A continuation of course 23.

Elective; junior year; second semester; three credits; one recitation; two laboratory periods. Hours to be arranged.—Mr. Flint and Mr. Masterton.

43. **Plant Materials.** A course of study covering the use of trees and shrubs in Landscape Design. This course is also a continuation of course 27, 28. All landscape gardeners should become thoroughly familiar with plants in both active and dormant conditions; and this course, given in the fall and winter, offers exceptional opportunities for study along this line.

Elective; senior year; first semester; two credits; two laboratory periods. Hours to be arranged.—Mr. Flint and Mr. Masterton.

44. **Plant Materials.** A continuation of course 29.

Elective; senior year; second semester; two credits; two laboratory periods. Hours to be arranged.—Mr. Flint and Mr. Masterton.

45. **Theory and Design. I.** This course deals with the technical and professional side of landscape gardening as related to the establishment and improvement of private estates, public grounds, parks, and cemeteries. The lectures given deal with the principles of landscape, as applied to actual problems. Field exercises and excursions are conducted for illustrating the work. Horticulture 1, 4, 27, History of Architecture, Drawing 1, Mechanical Drawing 1, are prerequisites of this course.

Elective; senior year; first semester; three credits; one recitation; two laboratory periods. Hours to be arranged.—Mr. Flint.

46. **Theory and Design. II.** This is a continuation of course 26.

Elective; senior year; second semester; two credits; one recitation; two laboratory periods. Hours to be arranged.—Mr. Flint.

47. **Field Practice in Landscape Gardening.** This course includes the application of the general principles of theory and design to practical problems in the field. Plane Surveying, and Topographical Surveying 5 are prerequisites of this course.

Elective; senior year; second semester; two credits; two laboratory periods. Hours to be arranged.—Mr. Flint.

FLORICULTURE.

Students taking their major in Floriculture are required to take Horticulture 3, 4.

51. **Greenhouse Construction.** A course especially adapted for students specializing in Floriculture and Truck Gardening. The problems connected with the building of greenhouses, hot-beds, and cold frames, are dealt with; also, selection of materials; the various systems of heating and ventilating, and the value of the various types of buildings. Lectures and laboratory exercises in greenhouse and drafting room are conducted.

Elective; junior year; second semester; three credits; one recitation; two laboratory periods. Hours to be arranged.—Mr. Flint.

52. **Forcing Flowers.** In this course are studied the propagation, and problems of culture, such as soils, ventilation, and heat, connected with the forcing of plants used in the florist's trade. Horticulture 33 is a prerequisite of this course.

Elective; senior year; first semester; three credits; one recitation; two laboratory periods. Hours to be arranged.—Mr. Flint and Mr. Gilkey.

53. This is a continuation of Horticulture 34.

Elective; senior year; second semester; three credits; one recitation; two laboratory periods. Hours to be arranged.—Mr. Flint and Mr. Gilkey.

Special work can be arranged for students taking their major in Horticulture.

54. **Floriculture. II.** Instruction is given in various subjects as, proper soils, planting of seed, transplanting, making of cuttings, cultivation, principles of heating and ventilation, control of insect pests and diseases, connected with the cultivation of the common household and dooryard flowers. In addition, such problems as the grouping and arranging of flowers, so as to obtain the best color harmonies and most pleasing effects while growing, as well as for decoration purposes, are included. The lectures are supplemented by reference readings and laboratory periods in the greenhouse and garden.

Course in Domestic Science and Art; junior year; first semester; two credits; one recitation; one laboratory period. Rec. 3–4, M., Lab. 10–12, F.—Mr. Flint and Mr. Masterton.

55. **Landscape Gardening.** The general principles of Landscape Gardening are taught, the aim being to give the student sufficient foundation to understand landscape gardening as applied to home decoration, to interest the student in the home beautiful, the improvement of our public school grounds, and city and village streets. A study is made of photographs, and famous landscape paintings, showing good taste and design in various phases of landscape gardening. Lectures and reference readings are supplemented by field exercises.

Course in Domestic Science and Art; second semester; two credits; one recitation; one laboratory period. Rec. 4-5, M., Lab. 10-12, F.—Mr. Flint.

56. **Vegetable Gardening and Small Fruit Culture.** In this course such problems as care of soil, seeding, rotation, fertilizing, and the selection of the best varieties of vegetables and small fruits for use in the home garden are considered. Lectures, laboratory and field exercises.

Course in Domestic Science and Art; second semester; three credits; two recitations; one laboratory period. Rec. 8-9, W. F., Lab. 10–12, M.—Mr. Bouquet.

POULTRY HUSBANDRY.

Professor Dryden.
Mr. Lunn.

In recognition of the importance of the poultry industry and to meet the demands of young men who aim to give special attention to this industry after leaving college, a department of Poultry Husbandry was established. Poultry-keeping is a part of every well regulated system of diversified farming and at the same time offers opportunities for profit-making as a special business. The plant at the College gives exceptional opportunities for a study of the practical as well as the theoretical side of the poultry industry.

1. **Poultry Husbandry I.** This course includes a study of breeds of domestic poultry, their history and classification. The laying and market qualities of different breeds will be emphasized. The laboratory work of this course will consist

of feeding and preparing fowls for market; killing, dressing, packing, and marketing the finished product; and judging practice with utility breeds will be given.

Elective; first semester; four credits; two recitations; two laboratory periods. Hours to be arranged.

2. **Poultry Husbandry II.** In this course the housing of poultry will be discussed; different types of houses will be studied. It will also include a study of poultry foods and feeding with reference to egg production and meat production. Incubation, natural and artificial, will be treated. Practice will be given in planning and building poultry houses and appliances. The student will have practice in operating incubators and brooders. He will have charge of a pen of fowls, for which he will keep all necessary records. Practical work will also be given bearing upon the management of the poultry plant. A study of the principles of feeding will be taken up in the class room and the students will be given practice in preparing rations in the laboratory.

Elective; second semester; four credits; two recitations; two laboratory periods. Hours to be arranged. Prerequisite: Poultry Husbaudry I.

Poultry Husbandry 3 and 4. Advanced Work. For those wishing to specialize in Poultry Husbandry, advanced work will be given in the junior and senior years. To be preceded or accompanied by courses 1 and 2. Successfully to complete the advanced work will mean that the student has demonstrated his ability to lay out and manage a poultry farm, or to fill a college or station position in Poultry Husbandry. There is a growing demand for specialists along these lines. The work will be largely along the line of original investigation and demonstration, testing new methods, conducting experiments, and writing up the results.

VETERINARY SCIENCE.

Dr. Morel.

The design of this department is to establish a high grade course of veterinary medicine for Agricultural students. The curriculum of instruction is based upon the rules and regulations of the United States Department of Agriculture.

The object of the course is to enable the student to prevent disease, diagnose existing pathological conditions, arrest outbreaks of contagious and infectious diseases among domestic animals, give medical attention in emergency cases, and take care of the sick.

The course is given during the junior and senior years. Comparative Anatomy and Veterinary Physiology—the fundamental branches of medicine—are taught during the junior year; Comparative Medicine, Surgery, Obstetrics, Pathology and Materia Medica will be given in the senior year. The students of this department will be expected to be present at all the clinics,—medical and surgical—and will have an opportunity to diagnose various diseases and assist in the surgical operations. Special attention will be given to lameness and obstetrics, and the students will be called upon to perform obstetrical operations under the supervision of the Veterinary Surgeon in charge.

1. **Comparative Anatomy.** Anatomy is taught in the most practical manner possible. The lectures are illustrated by fresh dissections, models, plates, blackboard drawings, etc. Anatomy, being the foundation of all medical knowledge, is fully explained in its relation to medicine and surgery. The course includes lectures, dissecting, recitations, and quizzes.

Junior year; first semester; three credits; three recitations. Rec. 4-5, M. T. T.—Dr. Morel.

2. **Veterinary Physiology.** The subjects of principles of nutrition, hygiene and animal locomotion are covered carefully. The work in this branch consists in a thorough study of those fundamental principles of general physiology.

Junior year; second semester; three credits; three recitations. Rec. 4-5, M. Tu. F.—Dr. Morel.

3. **Principles and Practice of Comparative Medicine.** This course comprises diagnosis, clinics, preventive medicine, and the control of infectious diseases.

Senior year; first semester; three credits; three recitations. Rec. 3-4, M. T. T.—Dr. Morel.

4. **Surgery.** This course includes lectures on diagnosis, clinics, surgical restraint, soundness, lameness, shoeing, dentistry and obstetrics.

Senior year; second semester; three credits; three recitations. Rec. 3-4, M. Tu. F.—Dr. Morel.

5. **Materia Medica.** This is a synopsis of Veterinary Materia Medica; toxicology and therapeutics will be taught. Special attention will be given to the most common drugs in use, poisons and antidotes, hygienic and prophylactic therapeutics.

Elective.

6. **Meat Inpsection.** A short course in meat inspection will be given to students who desire to pursue this study.

Elective.

FORESTRY.

Professor Peavy.
Mr. ————

The aim of the College in establishing a course in Forestry was principally to train young men in that profession, adapting the instruction so far as practicable to the solution of the peculiar forestry problems existing in our State and in the Northwest generally. It is realized fully that European forestry methods are not advisable at the present stage of economic development in this region. Practices in vogue abroad will be examined only as they apply to the fundamental principles of forestry. At the same time it is being made very clear that closer utilization, through the application of scientific methods, both in logging and in milling, is profitable business. Timber owners are becoming convinced that prospective high prices of lumber warrant them in so cutting their holdings as to conserve the young stuff, too small to mill with profit now, for a future harvest.

This indicates, in part, the field for the forester in this region. It is as certain as the law of supply and demand that, with the advancing value of timber, the call for trained men to manage forest properties will increase. Railroads and other large corporate owners of timbered lands are employing professional foresters to administer their holdings. The Federal Forest Service is rapidly raising the professional standard of its field force and, through the natural elimination of unprepared men and the inevitable increase in numbers which efficiency in administration demands, will, for years to come, afford employment for a large number of trained men. The recently enacted State Forestry law is an effective step in the development of a forestry policy in this State and indicates that Oregon will eventually require men to aid in forest protection and in caring for State forests which will undoubtedly be created in the future.

The College is located in the heart of a timbered region, offering exceptional opportunities to the forestry student to study conditions on the ground. Virgin forests and second growth stands are easily accessible. Logging operations can readily be reached from Corvallis, while two mills in the city offer an opportunity for studying milling methods. Wood distillation plants, creosote works and factories for the production of finished wood products can be reached in a few hours' travel. The City Water Company of Corvallis has placed an eighty-acre tract of forest land at the disposal of the College, for the demonstration of scientific forestry methods.

All students registered in the department of Forestry are required to participate in the activities of the "Forest Club." This organization meets twice each month and has for its purpose the discussion of current forestry literature, legislation, and all other matters pertaining to the progress of the forestry movement.

A. **Elementary Forestry I.** Covering in an elementary way the fundamental principles of forestry; the forest as a resource; the influence of a forest cover on soil and climate and stream flow; the aesthetic value of the forest; an elementary discussion of the development of forestry in Europe; the forestry movement in the United States.

The Secondary course; first year; first semester; four credits; three recitations. Rec. 2-3, M. T. W. T.—Professor Peavy.

B. **Elementary Forestry II.** A continuation of course A. The Secondary course; first year; second semester; four credits; four recitations. Rec. M. T. W. T.—Professor Peavy.

C. **Elementary Silviculture I.** The conditions favoring forest growth; the reproduction of the forest naturally and artificially; the collection of forest tree seeds; seed sowing; seed storage; general nursery practice; field planting. The natural extension of the forest.

The secondary course; second year; first semester; three credits; three recitations. Rec. 10-11, M. W. F. Mr. ———

D. **Elementary Silviculture II.** A continuation of course C. The Secondary course; second year; second semester; two credits; two recitations. Rec. 8-9, W. F.—Mr. ———

1. **General Forestry I.** A study of economic causes leading to the development of scientific forestry in Europe. Conditions in the United States pointing to the necessity for the application of improved methods; the natural forest; the forest improved by man; the forest regions of the United States; the national, state and private forests; the economic importance of forestry with special reference to American conditions. Special discussion of forest conditions in Oregon; farm forestry.

Freshman year; first semester; three credits; three recitations. Rec. 9-10, M. Tu. F.—Professor Peavy.

2. **General Forestry II.** A continuation of course I.

Freshman year; second semester; three credits; three recitations. Rec. 8-9, M. W. F.—Professor Peavy.

3. **Silviculture I.** Description of the forest; the soil, climate and other factors of the site; factors governing forest growth and distribution; the influence of the forest on stream flow, climate and soil; the economic loss from erosion; the life history of a tree and of forest types; silvicultural systems; artificial and natural regeneration; seed collection; seed testing; nursery practice; seed storage; forest planting; the application of silvicultural methods to the growing crop.

Sophomore year; first semester; three credits; two recitations; one laboratory period. Rec. 8-9, M. Tu., Lab., 2-4, F.—Mr. ———

4. **Silviculture II.** A continuation of course 3.

Sophomore year; second semester; four credits; two recitations; one laboratory period. Rec. 8-9, M. Tu., Lab. 2-4, W. F. —Mr. ———

5. **Forest Mensuration I.** The determination of the con-

tents of logs in cubic feet and in board measure; the study of log rules; methods of scaling timber; methods of computing the contents of entire felled trees; height measurements; volume tables; form factors; estimating the contents of entire stands; the growth rate of individual trees and of the forest; yield tables. Each student will be required to estimate, map and describe a given stand of timber.

Junior year; first semester; three credits; two recitations; one laboratory period. Rec. 8-9, M., 9-10, Th., Lab. 8-10, W. —Professor Peavy.

6. **Forest Mensuration II.** A continuation of course 5.

Junior year; second semester; three credits; two recitations; one laboratory period. Rec. 9-10, T. T., Lab. 2-4, F.—

7. **Management I.** The business of administering the forest; the policy of Federal, State, and private owners; a review of forest mensuration, including methods of determining the volume of single trees and of stands; the costs of forest products; the present value of the future crop; the value of young growth; the preparation of a working plan for a given area of timbered land, including a valuation survey, map, and forest description; the protection of the forest from fire, insect attacks and other injuries; the organization of the forest force for effective work.

Senior year; first semester; five credits; three recitations; two laboratory periods. Rec. 10-11, M. W. F., Lab. 10-12, T. T.—Professor Peavy.

8. **Management II.** A continuation of course 7.

Senior year; second semester; five credits; three recitations; two laboratory periods. Rec. 9-10, M. W. F., Lab. 10-12, M. W.—Professor Peavy.

9. **Utilization.** The use of the secondary wood products; the chemical products of wood; wood distillation; the utilization of waste; the tanbark industry; the manufacture of cooperage stock, shingle lath, matches, veneer, shipping crates, charcoal, etc.

Senior year; first semester; two credits; one recitation; one laboratory period. Rec. 9-10, M., Lab. 8-10, W.—Mr.

10. **Lumbering.** The history of the lumber industry, including a study of the methods used in different regions; special attention to lumbering operations in the Northwest; the transportation of logs from the woods to the mill; the use of

steam machinery in skidding and hauling; driving; the methods of milling; seasoning and grading; the cost of logging and milling with reference to some definite operation. During the course each student will be required to prepare a thesis from data collected by personal study of some extensive logging and milling business.

Senior year; second semester; five credits; two recitations; three laboratory periods. Rec. 3-4, T. T., Lab. 10-12, T. T. F.—Mr.

11. **Dendrology.** Classification and identification of forest trees; silvical characteristics of commercial species; forest regions of the United States; relative importance of timber species; life history and requirements of trees.

Senior year; first semester; three credits; one recitation; two laboratory periods. Rec. 11-12, M., Lab. 2-4, M. W.—Mr.

12. **Wood Technology.** Microscopic structure of wood; defects due to knots, decay, and checks; structural changes due to seasoning; identification and classification of commercial woods; experimental study of the strength of timbers; the relation between moisture content and strength; chemical properties of wood.

Senior year; second semester; three credits; one recitation; two laboratory periods. Rec. 8-9, M., Lab. 8-10, T. T.—Mr.

13. **Wood Preservation.** Primary causes of decay; the relation of moisture content to durability; surface application of preservation; the preservation of wood through impregnation with preservatives; the open tank method of treating timbers; economic effects.

Senior year; first semester; two credits; one recitation; one laboratory period. Rec. 11-12, M., Lab. 2-4, Tu.—Mr.

14. **National Forest Administration.** A study of the methods of administering the Federal Forests; the organization of the administrative force on the forest; fire patrol; timber sales; grazing; the forest homestead law; special uses of forest resources; permanent improvements.

Senior year; second semester; three credits; three recitations. Rec. 2-3, M. T. T.—Mr.

15. **Camping and Packing.** Correct methods of managing a camp; camp fires; camp cooking; field equipment; care of saddle and pack stock; packing.

Senior year; no credit; given as opportunity permits.

16. **Field Work.** Between the junior and senior years each student will be required to devote eight weeks to actual work in the field. This period will be given to the practical work required of foresters, as estimating, mapping, and preparing forest descriptions; rough topographic and plane surveying; examination of logging problems; study of site conditions in relation to forest types; camping and packing.

An quivalent amount of field work may be offered as a substitute for this course. Four credits.

17. **Advanced Silviculture.** A continuation of courses 3 and 4, with special reference to conditions existing in the forests of the Northwest. Each student will be required to make a silvical study of some specified forest tract.

Junior year; first semester; three credits; one recitation; two laboratory periods. Rec. 9-10, F., Lab. 4-6, Tu. W.

18. **Forest Surveying and Mapping.** Rough topographic and plane surveying of timbered areas; use of plane table and army sketching board; mapping field data; drill in lettering and in use of conventional signs.

Junior year; second semester; three credits; one recitation; two laboratory periods. Rec. 11-12, Tu., Lab. 10-12, Th. F.—Professor Peavy.

SCHOOL OF DOMESTIC SCIENCE AND ART.

Dean———————
Professor Van Liew.
Professor——————
Assistant Professor Van Deusen.
Miss Tobin.
Miss Ewing.
Miss Smith.

SECONDARY COURSE.

Domestic Science.

A. **Plain Cookery I.** Cooking of types of all common foods with a thorough study of the underlying principles involved; vegetables with special consideration of the best methods by which a good flavor and attractive appearance may be obtained; cooking of cereals, serving of uncooked cereals; eggs in various ways, scrambled, poached, boiled, and in omelets, plain, meat and jelly; the use of eggs in desserts, salads, sandwiches, with a consideration of their dietetic value; simple flour mixtures, such as muffins, popovers, biscuits, and pancakes. Lessons in the care of the kitchen, including cleaning of utensils, stoves, sinks, and refrigerators will be given and their proper care emphasized at all times.

First year; first semester; three credits; one recitation; two laboratory periods. Rec., 2-3, F. Lab., 2-4, M. W.

B. **Plain Cookery II.** A continuation of course A. Meats, the best method of cooking to develop flavor; value of broiling, boiling and roasting. Lessons in the making of soups, plain cake and bread will also be given during this term.

First year; second semester; three credits; one recitation; two laboratory periods. Rec., 2-3, F. Lab., 2-4, M. W.

C. **Cookery, Serving, Simple Dietetics I.** An elaboration of courses A, B, with attention given to good combinations in serving such as fish and puddings with their appropriate sauces; which vegetables to serve with certain meats, such as peas with lamb, apples with pork, and rice with chicken for palatability and proper proportion of food principles. Practice in the cooking and serving of meals for home occasions will give an opportunity for the selection of menus in which will be considered the best combination of soups, meats, salads, and desserts.

Second year; first semester; three credits; three laboratory periods. Lab., 4-6, M. W. 10-12, F.

D. **Cookery, Serving, Simple Dietetics II.** A continuation of course C, with attention to the preparation of refreshments for special occasions, such as luncheons, receptions, and dances. The care of the dining room and its appointments and table decorations, will be studied. The preparation and serving of food for common disorders in digestion; bran and gluten biscuits, broths, gruels, junkets, custards, egg and milk combinations will receive consideration.

Second year; second semester; three credits; three laboratory periods. 4-6, M. W. 10-12, Th.

E. **Laundering I.** This course deals with the principles of laundering through practical application. The subjects considered are: treatment of hard water, choice of starch, bluing and soap, laundering of bed, body, and table linen.

Second year; first semester; one credit; one laboratory period. 3-5, Tu.

F. **Laundering II. Laundering and Household Economics.** Pertains to dresses, waists, skirts, collars and cuffs, silks and flannels, removal of stains, cleaning of laces and colored embroideries. Soaps and other reagents will be made in class. Lectures on equipment and care of house laundry will be given. Practical cleaning and pressing of garments and practical cleaning and care of house furnishings will be required of the students.

Second year; second semester; one credit; one laboratory period. 3-5, Th.

G. **Home Cookery I.** The cooking of foods such as vegetables, cereals, flour mixtures, eggs, meats and fish will be supplemented by class discussion of methods and results. The care of food material will be discussed, also practical methods of cleaning the kitchen and its furnishings, the refrigerator, stove and utensils.

For students from courses other than D. S. and D. A.

First semester; two credits; two laboratory periods. Hours to be arranged.

H. **Home Cookery II.** A continuation of course G.

For students from courses other than D. S. and D. A.

Second semester; two credits; two laboratory periods. Hours to be arranged.

Domestic Art.

A. **Plain Sewing I.** Both hand and machine sewing, to give the student a knowledge of the principles of construction and execution; training in neatness, accuracy, and economy of material. Hemstitching of towels and runners will require of the student the development of good judgment and the power of producing regularity in stitches; hemming of towels and napkins, making of laundry bags and the apron, collar, cuffs and cap for cookery costume will give practice in simple sewing and prepare the student for more difficult work.

First year; first semester; three credits; three laboratory periods. 2-4, T. T. 11-1, F.

B. **Plain Sewing II.** Continuation of course A. Simple embroidery stitches will be taught on such articles as corset covers, ties, collars and belts. For practice in machine sewing and construction, simple undergarments and dressing jackets or kimonos will be made.

First year; second semester; three credits; three laboratory periods. 2-4, T. T. 11-1, F.

C. **Sewing, Simple Dresses I.** This course will require of the student more original and individual work, greater power of execution and ability to adapt principles already learned to new problems. Each student will make an unlined dress for school or evening wear, also an attractive hat suitable to wear with the dress made in class or one that will meet her own immediate need.

Second year; first semester; three credits; three laboratory periods. Lab., 2-4, M. W. F.

Prerequisites: Courses A, B.

D. **Sewing, Simple Dresses II.** Continuation of course C. Practice in drafting skirt, waist and sleeves, making of a more elaborate dress and hat. A variety of summer hats will be made by the class to show the use of different materials and the styles appropriate to the occasions for which they are planned.

Second year; second semester; three credits; three laboratory periods. 2-4, M. W. F.

. **Home Sewing I.** **This course** will include simple hand k in the making of towels, sewing aprons, baby clothes underwear; and machine work in the making of a set of erwear and simple dresses. As time permits, instruction in ple embroidering will be introduced into the course.

or students from courses other than D. S. and D. A.

irst semester; two credits; two laboratory periods. Hours e arranged.

. **Home Sewing II.** A continuation of course E.

or students from courses other than D. S. and D. A.

econd semester; two credits; two laboratory periods. Hours e arranged.

DEGREE COURSE.

Domestic Science.

. **Science of Cookery I.** The study of foods, their compoon, purpose in body, proper cooking and care, the effect of t, cold and fermentation upon foods, supplemented by lied practical work, collateral reading and class discussion. care and cleaning of the kitchen and its furnishings will ive attention.

reshman year; first semester; three credits; one recitation; laboratory periods. Sec. 1; Rec., 9-10, Tu. Lab., 10-12, F. Sec. 2; Rec., 9-10, Th. Lab., 2-4, T. T.

. **Science of Cookery II.** A continuation of course 1.

reshman year; second semester; three credits; one recita; two laboratory periods. Rec., 9-10, Tu. Lab., 10-12, M.

. **Science of Cookery III.** A course involving the theory cookery studied in 1 and 2 and planned for students who e completed sufficient work in cookery in other schools.

reshman year; second semester; three credits; two recitas; on laboratory period. Rec., 9-10, Th. 2-3, Tu. Lab., Th.

rerequisites: Domestic Science A, B, and 1, or equivalent.

. **Advanced Cookery I.** This course will be in advance of vious courses in its adaptation to the more mature minds of students. Emphasis will be laid on good combinations in ing through the making of menus, cooking and serving of ls for every-day use and social occasions; attention will be en to the care of the dining room, table laying and serving.

Theoretical work explaining bacterial actions such as souring of milk and bread, ripening of cheese and vinegar, spoiling of fruit, study of changes brought about by yeast in bread, and fermentation industries.

Sophomore year; first semester; three credits; one recitation; two laboratory periods. Sec. 1; Rec., 9-10, W. Lab., 10-12, T. T. Sec. 2; Rec., 2-3, M. Lab., 10-12, M. W.

Prerequisites: Domestic Science 1 and 2 or 3; Chemistry 3, 4.

5. **Advanced Cookery II.** Continuation of course 4 in practical cookery, theoretical work and serving. Preparation of dishes for such special occasions as picnic parties, birthday luncheons, and banquets; special problems in cooking with limitations as to numbers, expense, and time of preparation.

Sophomore year; second semester; three credits; one recitation; two laboratory periods. Sec 1; Rec., 4-5, W. Lab., 10-12 T. T. Sec. 2; Rec., 2-3, Tu. Lab., 10-12, W. F.

6. **Laundering III.** Subject matter and treatment practically the same as that of courses E and F. Higher ideals in work, better technique and better power of accomplishmen will be expected in this course, which will be adapted to th teaching of this subject as well as home use.

Sophomore year; second semester; one credit; one laborator period. Sec. 1;2-4, Tu. Sec. 2; 10-12 M.

7. **Special Cookery.** Infant diet will be studied with reference to the condition of organs and agencies in digestion modified milk and infant foods, from beef juices, barley grue fruit juices, eggs, and cereals, will be made. General care i abnormal conditions requiring attention on the part of th mother, will be considered. Invalid cookery, including th preparation and serving of foods adapted to common disease conditions of the digestive and circulatory systems; dishe from gluten, flour, oysters, eggs, fruits, and milk will b made. This work will be of service to students of hom nursing.

Elective; junior and senior years; first semester; two credits two laboratory periods. 10-12, T. T.

8. **Home Nursing.** Lectures, demonstrations, and practi in home nursing problems such as dressing cuts and burn bandaging, arrangement of the sick room, bed making, resto

ation from fainting and drowning, general care in cases of fever and other common diseases.

Junior year; second semester; one credit; one laboratory peroid. 4-6, W.

9. **Marketing.** Consideration of the economical purchase and preservation of foods; familiarity with the various types of markets; practice in obtaining raw materials for various purposes.

Elective; junior and senior years; first semester; two credits; two laboratory periods. 8-10, M. W.

10. **Home Problems.** A course dealing with the practical application of knowledge of marketing, cooking, serving and laundering. It consists largely in independent work in planning menus for family meals, and in their preparation and serving in the home kitchen and dining room of the department and in the entire care of the rooms used.

Elective; junior and senior years; second semester; two credits; two laboratory priods. Sec. 1; 8-12, W. Sec. 2; 8-12, M.

11. **House Sanitation.** The consideration of such problems as the best and least expensive methods of heating, ventilating, and lighting; also good plumbing and systems of supplying hot and cold water and carrying away waste water. All practical applications will be based upon a thorough understanding of the fundamental physical principles involved.

Senior year; second semester; two credits; two recitations. 4-5, T. T.

12. **Advanced Dietetics I.** A study of the physiology of alimentation; mechanical, chemical, and psycho-chemical process of digestion and foods as related to the body.

Elective; senior year; first semester; two credits; two recitations. 3-4, M. W.

13. **Advanced Dietetics II.** A study will be made of food principles and the proportions present in common foods. This course will include the compiling of good menus, calculation of dietetic value of a variety, and the actual serving of these menus, comparing theoretical and actual food value; also the study of special diets for children, students and hard working men. The best books on this subject will be read. Students will prepare a food museum showing food constituents present in their relative proportions in one pound each of twelve typical foods.

Elective; senior year; second semester; two laboratory peroids. 10-12, T. T.

14. **Fancy Cookery.** This course involves so-called fancy cookery; puff paste, cream puffs, aspic jellies, boning of fowls, chafing dish delicacies, lobster a la Newberg, Welsh rarebit, fancy desserts, cakes and wafers.

Elective; senior year; second semester; two laboratory periods. Hours to be arranged.

15. **Household Economics and Management I.** This cours deals with care of the house, including best methods of cleaning metals, woods, glass ,floor and wall coverings, and th study of the construction and care of stoves, ice-boxes, fireles cookers, etc.

Elective; senior year; first semester; one credit; one laboratory period. 10-12, F.

16. **Household Economics and Management II.** Deals wit the management, organization and work of the home, hous hold accounts, the expenditure of the income, the compariso of cost of fuels and other household expenditures and domest service.

Elective; senior year; second semester; one credit; one la oratory period. 8-10, Th.

17. **Normal Methods.** The object of this course is t consideration of teaching as a profession, the needs of young teacher, the problems she must confront and facto leading to success in the satisfactory solution of such problem

Elective; senior year; first semester; one credit; one reci tion. 9-10 M.

18. **Normal Methods in Cookery.** Includes a careful co sideration of courses of study in cookery, equipment, necessa and desirable, expense, time and grade of work; also the tailed study of lesson plans to prepare students for pract teaching.

Elective; senior year; first semester; two credits; two re tations. Hours to be arranged.

19. **Normal Methods in Domestic Economy.** This cou is based upon the knowledge and experience gained in previous courses, particularly that obtained from D. A. 14 D. S. 17 and 18. It consists of practice teaching in sewing cookery under the supervision of college instructors, also lectures and discussions guiding the student in intellig

hool visiting, in the planning of the installation of domestic
conomy in schools including the listing of necessary equip-
ent after visiting places where the best equipment may be
btained.

Each student is required to plan a course of study in do-
estic science and art which could be incorporated in the
rade and high school work of a typical school system in Ore-
on. Special problems taxing the resourcefulness, power of
itiative and originality of the student in correlating school
ork with home activities are also a part of the work of this
ass.

A Saturday morning class of children will be held in
e College school kitchens and sewing rooms. The members
the Normal Methods class will, in turn, teach this class
nd later discuss it in their own class period, so that all may
ceive some benefit from each class taught.

Elective; senior year; second semester; three credits; one
itation; two laboratory periods. Rec., 4-5, M.

20-21. **Plain Cookery I. and II. for Foresters.** The aim of
is course is to give a general knowledge of underlying prin-
iples of cookery and their application to foods that are used
camp life. A study will be made of cooking processes best
dapted to camp conveniences and methods of purchasing and
e preservation of foods.

Elective; junior or senior year; first and second semesters;
ne laboratory period. Hours to be arranged.

22. **Home Cookery III.** For women desiring knowledge of
ractical cookery for home use. A study of common types of
ood and their preparation in palatable and attractive forms.
ne evening lesson per week. Two terms of twelve lessons
ach. Fee, $2.50 per term. Day to be arranged.

Domestic Art.

1. **Sewing I.** Similar to courses A, B, but requiring bet-
er technique, broader comprehension of work and greater
ower of accomplishment than courses A, B. Both hand and
achine sewing will be taught on articles such as aprons,
owels and runners, napkins and tray cloths and a set of un-
erwear.

Freshman year; first semester; two credits; two laboratory
eriods. Sec. 1; 2-4, W. F. Sec. 2; 10-12, T. T.

2. **Sewing II.** A continuation of course 1. This course is for those students who have studied sewing one year and for those who have completed Dom. Art. 1. It is a continuation of Domestic Art 1 and consists of more advanced work. Drafting will be taught and a child's dress and plain shirtwaist suit will be made.

Freshman year; second semester; two credits; two laboratory periods. Sec. 1; 2-4, W. F. Sec. 2; 10-12, T. T.

3. **Simple Dressmaking and Hand Sewing.** The drafting and making of dresses, including infants' and children's clothing. Design, technique, appropriateness of colors and material will be emphasized; attention will be given to hand sewing and embroidery where such is applicable.

Sophomore year; first semester; three credits; three laboratory periods. Prerequisites: Sewing (Domestic Art A, B, and C, D), or Sewing (Domestic Art 1, 2). Sec. 1; 2-4, M. T. T. Sec. 2; 8-10, M. W. F.

4. **Simple Dressmaking and Hand Sewing.** A continuation of course 3.

Sophomore year; second semester; three credits; three laboratory periods. Sec. 1; 10-12, M. W. F. Sec. 2; 4-6, M. Tu. W.

5. **Dressmaking and Tailoring.** Drafting and making of costumes for various occasions, calling, dinners, dances, etc., giving experience in handling various materials and a scope for originality, good taste, beauty and appropriateness in design and costume, also the development of technique.

Elective; junior year; first semester; two credits; two laboratory periods. 10-12, M. W. Prerequisites: Domestic Art 1, 2, 3, 4.

6. **House Construction and Decoration.** The application of art principles to the construction and furnishing of all parts of the house; the practical work will consist in the making of house plans, giving careful attention to the arrangement, that both convenience and beauty obtain, also the selection of materials for furnishings, woodwork, papering, furniture, rugs, curtains; expense, appropriateness, combining of colors and various textures receiving careful consideration.

Junior year; second semester; three credits; three laboratory periods. Sec. 1; 10-12, M. T. T. Sec. 2; 2-5, T. T.

7. **Basketry I.** A form of decorative art which involves the construction of such articles as will require careful consideration of color, form and design, affording opportunities for the expresion of the originality of the individual in the making of reed, raffia, ash and sweet grass baskets.

Elective; junior year; first semester; two credits; two laboratory periods. Sec. 1; 8-10, M. W. Sec. 2; 2-4, T. T.

8. **Basketry II.** A continuation of course 7, requiring the completion of a large problem or the beginning of a more difficult one than previously attempted.

Elective; junior year; second semester; two credits; two laboratory periods. Sec. 1; 2-4, W. F. Sec. 2; 8-10, M. W.

9. **Advanced Basketry and Weaving I.** A continuation of courses 7 and 8, involving larger and more difficult problems n basket weaving; also the weaving of fabrics on a hand loom of ordinary form.

Elective; senior year; first semester; two credits; two laboratory periods. Hours to be arranged.

10. **Advanced Basketry and Weaving II.** A continuation of course 9.

Elective; senior year; second semester; two credits; two laboratory periods. Hours to be arranged.

11. **Handwork and Weaving I.** A course involving the construction of useful and beautiful articles illustrating what he mind and hand can conjointly do, thus making the most of the student on his executive as well as his reflective side. This work involves splicing of rope, knotting, braiding, netting, bead work, crocheting, embroidery and weaving.

Elective; senior year; first semester; two credits; two laboratory periods. Sec. 1; 10-12, T. T. Sec. 2; 2-4, M. W.

12. **Handwork and Weaving II.** A continuation of course 11.

Elective; senior year; second semester; two credits; two laboratory periods. Sec. 1; 10-12, W. F. Sec. 2; 8-10, M. Tu.

13. **Textiles.** A series of lectures on the manufacture of extiles. The materials used in making the various textiles, heir uses, both practical and decorative, will be given considration.

Elective; junior and senior years; second semester; one redit. Hours to be arranged.

14. **Normal Methods in Sewing.** This course is offered for

students desiring to teach sewing. Courses of sewing will b planned for children of different ages; each article of th course being made by the class so that each student will kno intimately the problems connected with it. The best metho of presenting the work to the children will receive consider tion.

Elective; senior year; first semester; two credits; two la oratory periods. Prerequisites: Domestic Art 1, 2, 3, 4, Lab., 8-10, T. T.

15. **Children's Dressmaking.** Making of clothes suita for children of different ages, including infants' clothi Hand work will applied where desirable. Emphasis will laid on simplicity, appropriateness and attractiveness.

Elective; senior year; second semester; two credits; two la oratory periods. Prerequisites: Domestic Art 1, 2, 3, 4, Lab., 8-10, M. Tu.

16. **Advanced Dressmaking and Tailoring.** Making draped gowns, drafting and making tailored waists, skirts a coats. Requires excellence in technique and perfect accur in construction.

Elective; senior year; first semester; three credits; th laboratory periods. Hours to be arranged.

Prerequisite: Dom. Art 1, 2, 3, 4, 5.

17. **Costume Design.** Special application of art princi to the designing of costumes and hats with a series of lect on the "History of Costume Design."

Elective; senior year; first semester; two credits; two lab tory periods. Hours to be arranged.

18. **Millinery.** The designing of hats, choosing and ha ling of appropiate materials, construction and braiding frames and the trimming of hats for various occasions and a considering at all times expense and appropriateness.

Elective; junior and senior years; second semester; credits; two laboratory periods. Hours to be arranged.

SCHOOL OF ENGINEERING AND MECHANIC ARTS.

CIVIL ENGINEERING.

Professor Skelton.
Mr. Gould.
Mr. Dolan.

1. **Plane Surveying I.** This course includes recitations, lectures, field and office work in the theory and practice of plane surveying. The theory and construction of the different surveying instruments are studied and practice will be given in making their tests and adjustments. The United States public land surveys and land laws are studied. Forms of field notes, methods of balancing and plotting surveys, computing areas and like work, will have due consideration. Proper emphasis will be placed upon chain surveying. Surveys will be made of assigned plats and descriptions prepared. Resurveys will be made where more than ordinary difficulty is encountered in the interpretation of descriptions and existing evidence.

The courses in Civil Engineering, Mining Engineering, and Forestry; freshman year; second semester; five credits; until April 15, four recitations; one laboratory period; after April 15, five laboratory periods. Before April 15, Rec., 3-4, M. T. W. T.; 2-3, T. T.; 4-5, M. W. Lab. 2-4, F.; 4-6, F.; 2-4, W. After April 15, 2-6, M. W.; 2-6, T. T.; 2-4, F.; 4-6, F.—Mr. Dolan.

Prerequisites: Mathematics 1 and Mechanical Engineering 1.

2. **Plane Surveying II.** This course is a condensation of course 1, and is designed for students in the courses in Agriculture and Mechanical or Electrical Engineering. The greater part of the time is spent by the student in the field with the various instruments. Exercises relating to farm surveying, drainage, irrigation, and road construction, occupy most of the time. Areas are computed, profiles are constructed, and estimates formed.

Elective; second semester; three credits; three laboratory periods, in the field or office. Hours to be arranged.

Prerequisite: Mathematics 1.

3. **Engineering Drawing I.** A continuation and extension of the previous work in drawing with special reference to application in Civil Engineering. Practice in tracing and in blue and black process printing will be given.

Sophomore year; first semester; two credits; two laboratory periods. Rec., 10-12, W. F.—Mr. Dolan.

Prerequisites: Mechanical Engineering 1 and 2; Art 1.

4. **Engineering Drawing II.** This course is a continuation of course 3.

Sophomore year; second semester; two credits; two laboratory periods. Rec., 10-12, W. F.—Mr. Dolan.

Prerequisite: Civil Engineering 3.

5. **Topographic Surveying.** This course will include the execution of a complete topographic survey of an assigned tract, including base line measurement, transit, stadia and plane table work, platting and finishing the map.

The courses in Civil Engineering and Forestry; sophomore year; first semester; four credits; five laboratory periods, until the Christmas holidays. Rec., 2-5, M. Tu. W.—Mr. Gould.

Prerequisites: Civil Engineering 1; Mechanical Engineering 1; Art 1.

6. **Railroads I.** Theory of economic grades, circular and spiral curves, turnouts, earthwork computations, and similar topics.

Sophomore year; first semester; one credit; five recitations, from the Christmas holidays to the end of the semester. Rec., 2-3, M. Tu. T.; 9-10, W. F.—Mr. Gould.

Prerequisites: Civil Engineering 1, 5.

7. **Railroads II.** This course is a continuation of course 6. A reconnaissance and location survey of a line several miles in length will be made, maps and profiles constructed, and estimates formed.

Sophomore year; second semester; five credits; two recitations; three laboratory periods. Rec., 9-10, F. Lab., 2-5, T. T. F.—Mr. Gould.

Prerequisite: Civil Engineering 6.

8. **Highway Construction.** This course includes a consideration of the fundamental principles of location, construction,

and maintenance of roads, as well as a thorough study of the materials used in road and street building. This course is given in connection with a laboratory course, Ex. Eng. 16.

Junior year; first semester; three credits; three recitations.

(During the first semester, senior year, 1911-1912). Rec., 10-11, M. W. F.—Professor Skelton.

9. **Masonry and Foundations.** A study of the properties of stone, brick, lime, cement, and concrete as building materials and of their uses in foundations, retaining walls, piers, and dams; the theory of the masonry arch, retaining wall and dam. Recitations, lectures and work in drafting and computing room.

Junior year; second semester; four credits; three recitations; one laboratory period. Rec., 10-11, M. Tu. W. Th.—Professor Skelton.

(During senior **year**; second semester, 1911-1912.)

10. **Roofs and Bridges I.** Both analytical and graphical methods will be applied to the determination of the stresses in roof trusses under static and wind loads and in simple bridge trusses under static and moving, concentrated and distributed, loads.

Senior year; first semester; four credits; two recitations; two laboratory periods.

Prerequisites: Mechanical Engineering 5 and 6.

11. **Roofs and Bridges II.** This course is a continuation of course 10. Draw-bridges, cantilever and suspension bridges, and reinforced concrete arch.

Senior year; second semester; four credits; two recitations; two laboratory periods.

12. **Sanitary Engineering.** Drainage systems of populous districts, including chemical and bacterial purification of sewage; collection and disposal of garbage; street cleaning; separate and combined water carriage system; surveys, plans, and specifications; law of flow and determination of size and capacity; brick, terra cotta, cement, and concrete sewers.

Senior year; first semester; three credits; two recitations; one laboratory period.

Prerequisite: Mechanical Engineering 7.

13. **Water Supply Engineering.** Water supply for populous districts; gravity and pumping systems; pumping machinery,

stand-pipes, reservoirs, and purification works; the preparation of plans, specifications, and contracts.

Senior year; first semester; three credits; two recitations; one laboratory period, designing and computing room.

Prerequisite: Mechanical Engineering 7.

14. **Irrigation Engineering.** Precipitation, run-off, and stream-flow; quantity of water required; measurements of flow in open channels; distribution systems, headworks and storage reservoirs, and other like topics. Study of a typical project including the preparation of plans and specifications.

Senior year; second semester; four credits; three recitations; one laboratory period.

15. **Contracts and Specifications.** A study of the general principles and laws of contracts as applied to engineering, including the preparation and study of specifications and contracts based upon engineering structures designed by the individual student.

Senior year; second semester; one credit; one recitation. Rec., 10-11,F.—Professor Skelton.

16. **Engineering Seminar I.** The members of the junior and senior classes in the course in Civil Engineering, and the professor and instructors, constitute the Civil Engineering Seminar which meets once a week. The purpose of this seminar is to bring the student in touch with engineering literature and practice. To this end, a number of journal reviews and papers on engineering subjects will be presented and freely criticised each week. The work will follow a previously arranged program.

Junior year; second semester; one credit. Rec., 11-12, M.—Professor Skelton.

17. **Engineering Seminar II.** See course 16.

Professor Skelton.

(During second semester, senior year, 1911-1912.)

18. **Engineering Seminar III.** See course 16.

Senior year; second semester; one credit.

Courses 10, 11, 12, 13, and 14, are given during the year 1911-1912 only to the fifth year or graduate classes.

ELECTRICAL ENGINEERING.

Professor——————
Mr. Shepard.
Mr. Wooster.
Mr. Ewart.
Mr. Pernot.

1. **Dynamo-Electric Machinery.** In this course the student becomes familiar with the fundamental laws of electric and magnetic circuits; the structure of generators and motors; estimation of resistances, losses, and efficiencies; armature windings; and the types of machines suited to modern requirements.

Junior year; first semester; three credits; three recitations. Rec., 11-12, M. T. T.—Mr. Shepard.

Prerequisites: Physics 3 and 4; Mathematics 7 and 8.

2. **Alternating Currents.** In this course alternating currents are considered both from a mathematical and graphical standpoint. It includes the measurement of power; study of the action of resistance, inductance and capacity in series and parallel circuits; effect of variation of frequency and wave form; the general theory of alternators, transformers, induction motors, converters, and their construction.

Junior year; second semester; three credits; three recitations. Rec., 11-12, M. T. T.—Mr. Shepard.

Prerequisites: E. E. 1; Mathematics 7 and 8.

3. **Advanced Alternating Currents.** The action and operation of alternating current generators; motors of synchronous and induction types, and transmission lines are considered mathematically; the Steinmetz symbolic method of solution of problems being used.

Senior year; first semester; three credits; three recitations. Rec., 9-10, M. T. T.—Professor

Prerequisite: E. E. 2.

4. **Electrical Engineering Laboratory I.** Construction of direct current dynamos and motors and their operation; the applications of ammeters, voltmeters, and wattmeters to the measurement of power are made familiar to the student. Field

and armature resistances, and characteristic curves are obtained. Commercial tests are made.

Junior year; first semester; two credits; two laboratory periods. Lab., 2-4:30, W. F.—Mr. Wooster and Mr. Ewart.

Prerequisites: Physics 3 and 4; Mathematics 7 and 8.

5. **Electrical Engineering Laboratory II.** Study of alternating current circuits, instruments, and machines; determination of candle-power of arc and incandescent lamps; commercial testing.

Junior year; second semester; two credits; two laboratory periods. Lab., 2-4:30, W. F.—Mr. Wooster and Mr. Ewart.

Prerequisite: E. E. 4.

6. **Electrical Engineering Laboratory III.** Advanced direct and alternating current testing, including that of single and polyphase alternators; synchronous and induction motors; transformers; synchronizing, and transmission line operation.

Senior year; first semester; two credits; two laboratory periods. Lab., 2-4:30, T. T.—Mr. Wooster and Mr. Ewart.

7. **Electrical Engineering Laboratory IV.** Continuation of E. E. 6.

Senior year; second semester; two credits; two laboratory periods. Lab., 2-4:30, T. T.—Mr. Wooster and Mr. Ewart.

Prerequisite: E. E. 6.

8. **Electrical Distribution.** The different types of electric circuits and systems of wiring from an economic standpoint; aerial and underground construction; house wiring, and best forms of illumination.

Senior year; first semester; two credits; two recitations.

Prerequisites: E. E. 2 and 5.

Not given in 1912.

9. **Electrical Design I.** Required of each two students who take this subject, a design of a direct current generator, consisting of four tracings of design plates which they have made on detail paper, and a complete report on same, giving all computations and dimensions, which is accompanied by a sheet of predetermined performance curves. Each student is required to design a transformer and make a report on same. Number of plates required per student taking this course is three.

Senior year; first semester; three credits; three laboratory periods. Lab., 2-4:30, M. W. F.—Professor   and Mr. Pernot.

10. **Electrical Design II.** Required of each two students, the design of an alternator or rotary converter, and an induction motor. Four tracings per student; two reports.

Senior year; second semester; three credits; three laboratory periods. Lab., 2-4:30, M. W. F.—Professor and Mr. Pernot.

Prerequisite: E. E. 9.

11. **Power Plants.** Principles governing the location of power plants, both steam and hydraulic; the economics of transmission; selection and installation of generating units; railway construction and rolling stock; management and testing of complete plants are considered. Time is devoted to the study of estimates, specifications, and superintendence. A design of a steam-electric or hydro-electric power station and distribution system. An engineering report upon such design is required to complete this subject.

Senior year; second semester; three credits; three recitations. Rec., 9-10, M. T. T.—Professor

Prerequisite: E. E. 3.

12. **Seminar I.** Weekly meetings are held for the discussion of articles appearing in current periodicals and scientific papers.

Elective; senior year; first semester; one credit. Hours to be arranged.—Professor

13. **Seminar II.** Elective; senior year; second semester; one credit. Hours to be arranged.—Professor

14. **Storage Batteries.** The several types of storage batteries are studied from chemical, physical, and commercial standpoints.

Senior year; second semester; one credit; one recitation.

Not given in 1911-12.

15. **Telephony.** The underlying principles of the transmission of intelligence by electrical means, and the methods of operation of the telegraph, telephone, wireless telegraph, wireless telephone, and their relative values commercially, are studied.

Senior year; two credits; two laboratory periods.

Not given in 1911-12.

16. **Thesis I.** Most of the preliminary reading and planning is done during the first semester, while the actual inves-

tigation or construction work occurs in the second semester.

Senior year; first semester; one credit.

17. **Thesis II.** A continuation of course 16.

Senior year; second semester; one credit.

18. **Electro-Chemistry.** Electric heating and electrolyti processes for the manufacture of chemicals and metals are discussed. Different types of electric furnaces and storage batteries are considered.

Elective; senior year; second semester; two credits; two laboratory periods. Hours to be arranged.—**Mr. Shepard.**

MECHANICAL ENGINEERING.

Professor Covell.
Assistant Professor Phillips.
Assistant Professor Jackson.
Assistant Professor Graf.
Mr. Porter.
Mr. Knopf.
Mr. Rodgers.
Mr. Greve.
Mr. ————
Mr. ————

1. **Mechanical Drawing I.** The use of instruments and the elementary principles of mechanical drawing are taught by a graded series of plates, including simple practice sheets, geometric constructions, principles of orthographic projection, shading, the helix with its application to screw-threads, and finally the complete development of a working blue-print of some simple device from sketches. Particular attention is given to freehand lettering, general neatness, and accuracy.

All courses in Engineering; freshman year, and Secondary course in Forestry; second year; first semester; three credits; three laboratory periods. Lab., 8-10, M. W. F.; 2-4, M. W. F. —Mr. Greve. 10-12, M. T. T.—Mr. Dolan.

2. **Descriptive Geometry.** This work consists in the graphical solution of problems involving the projection of lines, surfaces, and solids.

All courses in Engineering; freshman year; second semester; three credits; two recitations and one laboratory period. Rec., 9-10, M. W.; 9-10, T. T.; 8-9, M.; 9-10, T.; 10-11, W. Th.; 2-3, M. W.; 2-3, T. T. Lab., 8-10, Th.; 8-10, F.; 10-12, M.; 10-12, F.—Mr. Greve.

Prerequisite: Mechanical Drawing 1.

3. **Mechanical Drawing II.** A continuation of course 1, including mechanical lettering, line shading, isometric and oblique projection, gear curves and their application to spur, bevel, and worm gearing. Following this is the preparation of a typical set of working drawings, tracings, and blue-prints

of a complete machine. Rapid and business-like execution of work is insisted upon at all times.

The courses in Electrical and Mechanical Engineering; sophomore year; first semester; four credits; four laboratory periods. **Lab., 2-6, T. T.—Mr Greve.**

4. **Mechanism.** A study of mechanical movements, including velocity ratios; transmission of motion by linkwork, gearing, cams, and belting.

The courses in Electrical and Mechanical Engineering; sophomore year; second semester; four credits; two recitations; two laboratory periods. Rec., 4-5, T. T. Lab., 2-4, T. T.—Assistant Professor Phillips.

Prerequisite: Course 2.

5. **Statics and Dynamics.** This course treats of the action of forces upon bodies at rest or in motion. Many original problems are worked and the practical applications pointed out.

All courses in Engineering; junior year; first semester; four credits; four recitations. Rec., 8-9, 9-10, M. T. W. T.; 10-11, T. W. T. F.—Professor Covell.

Prerequisites: Mathematics 7 and 8.

6. **Strength of Materials.** A study of the strength of materials with special reference to their use in such engineering structures as beams, trusses, girders, and shafting.

All courses in Engineering; junior year; second semester; two credits; two recitations. First half semester, 8-9, 9-10, M. T. W. T.; 10-11, T. W. T. F.—Professor Covell.

Prerequisite: Course 5.

7. **Hydraulics.** This course deals with theoretical hydraulics, including statical pressure, immersion, flotation, and steady flow through pipes and orifices as well as over weirs and in open channels. Bernoulli's theorem is taken as the basis for calculation of flow in pipes and through orifices, with such modifications as are required to allow for frictional and other resistances.

All courses in Engineering; junior year; second semester; two credits; two recitations. Second half semester, 8-9, 9-10, M. T. W. T.; 10-11, T. W. T. F.—Professor Covell.

Prerequisite: Course 5.

(During 1911-1912 courses 5, 6, and 7 will be given in the senior and junior years of all Engineering courses.)

8. **Materials of Engineering.** This is largely a lecture course dealing with the materials used in engineering structures. Iron, steel, brick, cement, timber, and stone are discussed with reference to thir physical properties and adaptability to the purposes of engineering construction.

The courses in Civil and Mechanical Engineering; junior year; first semester; two credits; two recitations. Rec., 11-12, W. F.—Mr. Greve.

Prerequisites: Physics 3 and 4.

9. **Elementary Steam Engineering.** It is the purpose of this course to teach the elementary principles of steam engineering, in as practical a manner as possible, to students who are not taking one of the engineering courses. The scientific principles are taught by means of recitations, but a large part of the work consists of laboratory exercises, where the student comes into actual contact with steam machinery and learns to operate and care for it.

Elective; junior year; first semester; two credits; one recitation and one laboratory period. Hours to be arranged.—Mr. Greve.

10. **Steam Machinery.** This course treats of steam boilers, feed water heaters, injectors, mechanical stokers, steam engines, governors, valve gears, indicators, and indicator diagrams. The purpose is to make the student familiar with the forms of these devices, which are of prime importance in a power plant, and to solve problems concerning their installation and use.

The courses in Electrical and Mechanical Engineering; junior year; second semester; two credits; two recitations or an equivalent. Rec., 11-12, W. F.—Mr. Greve.

Prerequisites: Physics 3 and 4.

13. **Machine Design. I.** This course is elementary and consists largely in applying the principles discussed in mechanism and in mechanics to the design of machine parts, riveted joints, fastenings, belting, and shafting.

Senior year; first semester; four credits; four recitations. Rec., 10-11, M. T. W. T.—Assistant Professor Phillips.

Prerequisites: Courses 4 and 6.

14. **Machine Design II.** A continuation of course 13, devoted to the design of complete machines, steam engines, ma-

chine tools, pumping machinery, and their installation.

Senior year; second semester; four credits; four laboratory periods. Lab., 10-12, M. W. Th. F.—Assistant Professor Phillips.

Prerequisite: Course 13.

15. **Thermodynamics.** This course treats of the laws governing the transformation of heat into work, particularly in the steam engine. The general laws of thermodynamics are discussed and a number of practical problems are solved.

The courses in Electrical and Mechanical Engineering; senior year; first semester; three credits; three recitations or lectures.—Professor Covell.

Prerequisites: Mathematics 7 and 8; Physics 3 and 4.

16. **Internal Combustion Motors.** In this course the application of thermodynamics to gas and oil engines is studied with reference to economy of operation and the results are compared with those obtained from the steam engine. The properties and cost of fuels are discussed, as well as the methods of carburation and ignition.

Senior year; second semester; two credits; two recitations.—Professor Covell.

Prerequisite: Course 15.

17. **Steam Turbines.** The steam turbine has taken its place as one of the important factors in transforming energy into work. Hence, the principles involved in its construction and operation should be well understood by engineering students. This course considers the flow of steam through pipes and nozzles and its action on turbine buckets. The effects of superheating are noted and some attention is given to steam turbine design.

Senior year; second semester; two credits; two recitations.—Professor Covell.

Prerequisite: Course 15.

18. **Hydraulic Motors.** The application of the principles of theoretical hydraulics and mechanics to the development of power by means of water wheels, is discussed. The different types of turbines and impulse wheels are considered with reference to their forms and adaptabilty.

Senior year; first semester; two credits; two recitations.—Professor Covell.

Prerequisite: Course 7.

(During 1911-1912, courses 15, 16, 17, and 18 are required only of students taking the fifth or graduate year.)

EXPERIMENTAL ENGINEERING.

1. **Engineering Laboratory I.** A study of experimental investigation; reduction of data so obtained; mechanical calculating devices; the prepartion of neat and accurate reports. The calibration of various measuring instruments follows, after which are made transverse, tensile, compressive, torsion, and other standard tests of the common materials of construction.

Course in Mechanical Engineering; junior year; and Mining Engineering; senior year; first semester; two credits; two laboratory periods.

(During the year 1911-1912: The course in Mechanical Engineering, both junior and senior years; first semester; two credits; two laboratory periods.) Lab. 2-6, W.; 2-6, F.—Mr. Graf.

2. **Engineering Laboratory II.** A continuation of the preceding, including tests of lubricants, calorific power of fuels, flue gas analysis, steam calorimetry, and indicator practice in valve setting. Efficiency tests of steam engine and boiler, gas engine, pumps, water wheel, etc.

Course in Mechanical Engineering, junior year; and Mining Engineering, senior year; second semester; two credits; two laboratory periods. Lab. 2-6, W.; 2-6, F.—Mr. Graf.

Prerequisite: Course 1.

(During the year 1911-1912: The course in Mechanical Engineering, both junior and senior years; second semester; two credits; two laboratory periods.)

3. **Engineering Laboratory III.** A course in experimental work dealing with the more advanced tests on steam plant auxiliaries, steam engines and boilers, as well as on other prime movers and machines. Various tests are made on injectors, feed water heaters, a Corliss engine, steam turbine, Reeco-Ericsson hot air engine, gas engines, centrifugal blower, air compressor, etc.

The course in Mechanical Engineering, senior year; first semester; two credits; two laboratory periods.

Elective to seniors in other courses and to graduate students. Hours to be arranged.—Mr. Graf.

Prerequisites: Courses 1 and 2.

4. **Engineering Laboratory IV.** A continuation of course 3, the greater portion of the time being devoted to special investigations as assigned.

The course in Mechanical Engineering, senior year; second semester; two credits; two laboratory periods.

Elective to seniors in other courses and to graduate students. Hours to be arranged.—Mr. Graf.

Prerequisite: Course 3.

5. **Engineering Laboratory V.** A special course intended primarily for Electrical Engineering students. The work is abridged from courses 1 and 2, and embraces those tests which will be of greatest value in practice.

The course in Electrical Engineering, senior year; second semester; two credits; two laboratory periods.—Mr. Graf.

Not given 1911-1912.

11. **Cement Laboratory.** An experimental study of natural and Portland cements. Sampling, study of apparatus, preparation of reports, problems to determine various properties, effects of different conditions, and finally complete commercial tests on one sample of natural and one of Portland cement.

The course in Civil Engineering, junior year; first semester; one credit; one laboratory period.

(During the year 1911-1912: The course in Civil Engineering, both junior and senior years; first semester; one credit; one laboratory period.) Lab. 4-6, Tu.; 4-6, Th.—Mr. Graf.

16. **Highway Laboratory.** This course parallels the textbook work in Highway Construction, and includes the mechanical analysis of sands and aggregates; determination of voids and a study of mixtures; abrasion, toughness, recementing, and other tests of macadam rock; tests on bituminous compounds; and standard tests on paving brick. Reports are required on all tests.

The course in Civil Engineering, junior year; first semester; one credit; one laboratory period. Lab. 2-4, Tu.; 2-4, Th.—Mr. Graf.

(During the year 1911-1912: The course in Civil Engineering, both junior and senior years; first semester; one credit; one laboratory period.)

21. **Structural Materials Laboratory.** Standard tests of

timber, iron, steel, brick, stone, etc., with special reference to the specifications adopted by the American Society for Testing Materials. Following these general tests the time is devoted to special work on reinforced concrete.

The course in Civil Engineering, junior year; second semester; two credits; two laboratory periods.

(During the year 1911-1912: The course in Civil Engineering, both junior and senior years; second semester; two credits; two laboratory periods.) Lab. 2-6, Tu.; 2-6, Th.—Mr. Graf.

26. **Hydraulic Laboratory.** Calibration of weirs, orifices, water meters, etc. Tests on water wheel, centrifugal and other pumps, hydraulic ram, and measurement of stream flow. Full and complete reports are required.

The course in Civil Engineering, junior year; second semester; one credit; one laboratory period.

(During the year 1911-1912: The course in Civil Engineering, both junior and senior years; second semester; one credit; one laboratory period.) Lab. 10-12, F.; 8-10, F.—Mr. Graf.

SHOP WORK.

A. **Woodwork I.** Mechanic Arts Course. This course in woodwork will be divided into three parts, carried on simultaneously.

a. A lecture course on methods and materials used in Mechanic Arts, including bench equipment, use and care of bench tools; carpentry and laying out work; joinery or putting work together; fastenings, structure and defects of wood; methods of cutting and seasoning; furniture construction and design; wood finishing, painting, staining, varnishing, waxing, and polishing. This will require one hour a week.

b. One hour a week will be devoted to mechanical drawing and a study of drawings to enable the student to make drawings of the articles which he is called upon to make in the shop and to interpret drawings in general.

c. A woodwork course, including joinery, primary construction work, furniture construction and finishing. The purpose of this course is to instil a knowledge of the principles of joinery by teaching the use and care of woodworking tools, to develop skill in their use by means of progressive exercises. The application of the joints is shown in the construction of finished products. All of the operations must be methodically and accurately performed, and the finished product have a neat and workmanlike appearance.

Secondary course in Mechanic Arts, first year; first semester; five credits; one recitation; four laboratory periods. 10-12, daily.—Assistant Professor Jackson, Mr. Rodgers.

B. **Woodwork II.** A continuation of course A.

The secondary course in Mechanic Arts; first year; second semester; five credits; one recitation; four laboratory periods. 10-12, daily.—Assistant Professor Jackson and Mr. Rodgers.

C. **Woodwork III.** Mechanic Arts Course. Those who desire to specialize in woodwork may do so by devoting the whole time allotted to industrial work to this branch. Such students will continue along the same lines as indicated in courses A and B, and during the second year will enter upon high grade cabinet work.

The Secondary course in Mechanic Arts; second year; first semester; five credits; five laboratory periods. Lab. 2-4, daily. —Assistant Professor Jackson.

D. . . **Woodwork IV.** A continuation of course C.

The Secondary course in Mechanic Arts; second year; second semester; five credits; five laboratory periods. Lab. 2-4, daily.—Assistant Professor Jackson.

E. **Patternmaking I.** Mechanics Art Course. Those who prefer patternmaking to cabinet work may devote the second year to that subject, following the plan outlined under C and D.

The Secondary course in Mechanic Arts; second year; first semester; five credits; five laboratory periods. Lab. 2-4, daily. —Mr. Rodgers.

F. **Patternmaking II.** A continuation of course E.

The Secondary course in Mechanic Arts; second year; second semester; five credits; five laboratory periods. Lab. 2-4, daily. —Mr. Rodgers.

G. **Woodwork V.** This course will be equivalent to the first six weks of the Mechanic Arts course A.

It consists of six lectures on the care and use of bench tools, six lessons in mechanical drawing, and twenty-eight laboratory periods in the practical use of the various tools in the way of planing, sawing, chiseling, etc.

In this course each student is required to have a drawing board, T-square, compass, lead pencil and three sheets of meanical drawing paper, the cost of which will not exceed one llar.

The Secondary course in Agriculture and Forestry; second ar; second semester; two credits; two laboratory periods. ıb. 2-4, T. T.—Assistant Professor Jackson.

H. **Woodwork VI.** Work leading to a course in Architecre. Requirements for entrance, two-year course in Secondary anual Training or Mechanic Arts course A or its equivalent.

The course will consist of one lecture each week, three ours of drawing per week, embracing mechanical, perspective, ıd design work.

Practical experience in the use of the steel square in laying ıt braces, rafters, and trusses, ready for the framing, will be ade a strong feature of the course. The laying out and uilding to scale forms and arches for concrete piers, columns, rches, and foundations will be taken up along with the framıg and constructing of summer cottages, suburban homes, arns, septic tanks, and different styles of fencing and other ecessities about the well-kept home.

This course will be given on Saturdays and may be taken in ieu of Secondary Mechanic Arts courses C, E, or G. However, unless twenty or more students desire to take the course, t will not be given, on account of the limited shop room.

The Secondary course in Mechanic Arts; second year; first emester; five credits; five laboratory periods. Lab. 2-4, daily. —Assistant Professor Jackson.

I. **Woodwork VII.** This is a continuation of course H, and s given in the Secondary course in Mechanic Arts; second year; second semester; five credits; five laboratory periods. Lab. 2-4, daily.—Assistant Professor Jackson.

J. **Blacksmithing I.** The student is taught to make and manage the forge fire, to shape iron by bending, upsetting, drawing and welding. The course also includes occasional lectures on the principles involved in managing the fire and in forging.

Elective; second year of the Secondary course in Mechanic Arts; first semester; five credits; five laboratory periods. Lab. 2-4, daily.—Mr. Porter.

K. **Blacksmithing II.** A continuation of course J; devoted to making useful articles and tools of iron and steel. A large part of the time is given to making and tempering steel tools.

This course is also accompanied by lectures on the different grades of steel and the effects of heat treatment.

Elective; second year of Secondary course in Mechanic Arts; second semester; five credits; five laboratory periods. Lab. 2-4, daily.—Mr. Porter.

Prerequisite: Course J.

L. **Blacksmithing III.** After completing the preliminary exercises, the student enters upon work having direct application to farming and forestry, such as mending of farm implements, making chains, clevises and hooks, ironing whiffletrees and neckyokes, and sharpening tools.

Required in the Secondary courses in Agriculture and Forestry; second year; first semester; two credits; two laboratory periods; Lab. 2-4, T. T.—Mr. Porter.

M. **Steam-fitting and Plumbing I.** This course is intended as an aid to those who desire to follow the occupation of steamfitting or plumbing. The practical work includes the installation of piping for steam, water, or gas; a study of the principles involved in expansion, radiation, and water hammer. The work in plumbing takes up the construction of bends, traps, and various types of wiped joints; also a study of ventilation; the proper arrangement of soil and water pipes, hot water boilers and tanks.

Elective; second year; first semester; five credits; five laboratory periods.

N. **Steam-fitting and Plumbing II.** This is a continuation of course M.

Elective; second year; second semester; five credits; five laboratory periods.

O. **Woodwork XI.** This course is intended for those who wish to teach or supervise maunal training work in the secondary schools.

The work consists of laboratory exercises accompanied and supplemented by lectures on the care and use of manual training equipment; methods and materials used in manual training, and comparison of equipment and courses in manual training.

This course has special reference to the work of manual training in the first, second, third, and fourth grades of the public schools.

Secondary Mechanic Arts course; second year; first semester; five credits; one recitation; four laboratory periods. Lab. 2-4, daily.—Assistant Professor Jackson.

P. **Woodwork XII.** A continuation of course O, applying to the manual training work of the fifth, sixth, seventh, and eighth grades.

Secondary Mechanic Arts course; second year; second semester; five credits; one recitation; four laboratory periods. Lab. 2-4, daily.—Assistant Professor Jackson.

1. **Woodwork VIII.** This course, though designed for the Mechanical and Electrical Engineering students, is divided into two courses (a) and (b), because of the lack of Secondary Manual Training in Mechanic Arts in some parts of the State and the presence of it in other parts.

(a) Students who have not had the advantage of Secondary Manual Training in Mechanic Arts will enter the class in bench work for the first semester or until they have developed sufficient skill to enter the advanced work.

(b) Students who have had a year or more of Secondary Manual Training in Mechanic Arts work will enter the class in wood turning preparatory to pattern work.

The course on bench work will consist of a series of exercises in planing, sawing, and chiseling, preceded by a lecture course explaining each step in advance.

The course in wood turning is taken in conjunction with lectures on the lathe, its care and management, and the care and use of turning tools.

After acquiring sufficient skill in turning between centers and chuck turning, the primary principles of patternmaking will be taken up, which is the main feature of the course.

Required in Mechanical and Electrical Engineering courses; freshman year; first semester; three credits; three laboratory periods. Lab. 8-10, M. W. F.; 2-4, M. W. F.—Mr. Rodgers.

2. **Patternmaking III.** The students in engineering will take up the art of patternmaking where they left off at the close of the first semester, beginning with simple exercises and advancing until they have made patterns for various parts of machines and other structures such as pulleys, pipe fittings, valves, gear wheels, dynamo frames and special patterns as assigned. Much of the constructive work collaborates with the exercises required in machine design in building new ma-

chines and equipment for the various departments of the College.

The lectures explain the correct methods of constructing the more complicated work, also the principles of moulding directly related to patternmaking; the shrinkage of metals; the warping and twisting of woods; glue and metal fastenings; making cores and core boxes; methods of marking and storing patterns; estimating the weight of metal castings.

The courses in Electrical and Mechanical Engineering; freshman year; second semester; three credits; three laboratory periods. Lab. 2-4, M. W. F.—Mr. Rodgers.

3. **Woodwork IX.** This course is designed for Mining and Civil Engineering students, and consists primarily of a series of constructive exercises in carpentry and joinery, accompanied by one lecture a week dealing with the care and use of bench tools; the use of the steel square in framing and laying out work. The first constructive exercises are designed to teach the use of the various hand tools as well as the forms of joints and ties used in truss and bridge framing, dictated by good engineering practice.

Upon completing this series of exercises, the preceding joint work will be developed into trusses and bridges which upon being completed will be placed in the testing laboratory for experimental purposes.

During the latter part of the semester the Mining Engineering students specialize in mine timbering, and the Civil Engineering students in cement forms and trusses for foundation and arch construction.

Mining course; freshman year; first semester; three credits; three laboratory periods. Lab. 10-12, T. T. F.—Mr. Rodgers.

4. **Woodwork X.** This course is equivalent to that in the Winter Short Course in Mechanic Arts. The purpose of this course is to give instruction in the care and use of modern woodwork benches and their equipments. Six lectures will be given in this course, each lecture preceding its practical application. Skill in the manipulation of tools cannot be obtained in this short time, but instruction and practice will be given in sharpening chisels, planes and other edge tools; in jointing setting, and filing hand-saws, and in the use of the steel square as in the elementary principles of carpentry. As much stress will be placed on planing, sawing, and chiseling exercises as

time will permit.

The course in Agriculture; freshman year; first semester; two credits; two laboratory periods. Lab. 4-6, T. T.—Assistant Professor Jackson.

5. **Blacksmithing IV.** The student is taught to make and manage the forge fire; to shape iron by bending, upsetting drawing, and welding. Many useful articles are made, consisting of hooks, staples, rings, clevices, and chains.

The courses in Mechanical and Electrical Engineering sophomore year; first semester; three credits; three laboratory periods. Lab. 2-4, M. W. F.—Mr. Porter.

6. **Blacksmithing V.** This is a continuation of course 5, and is devoted to more advanced work, consisting largely of work in steel. The principles of hardening and tempering are taught and applied in making hammers, chisels, drills, cutting tools for the shop, and in doing special work as assigned.

The course in Mechanical Engineering; sophomore year; second semester; three credits; three laboratory periods. Lab. 2-4, M. W. F.—Mr. Porter.

7. **Blacksmithing VI.** A course for students in Agriculture. After completing the first exercises, the student enters upon work having direct application to farming, such as the mending of farm implements, making and mending of chains, clevices, and hooks; ironing of whiffletrees and neckyokes; sharpening of tools.

The course in Agriculture; freshman year; second semester; two credits: two laboratory periods. Lab. 2-4, Th. F.; 4-6, M. W.; 4-6, T. T.—Mr. Porter.

8. **Blacksmithing VII.** A course for students in Mining Engineering. After learning the care and management of the forge fire, the student will devote his time to making and tempering cold chisels, rock drills, picks, etc.

The course in Mining Engineering; sophomore year; first semester; two credits; two laboratory periods. Lab. 2-4, M. F. —Mr. Porter.

9. **Machine Shop I.** The work in the machine shop includes both bench and machine work. Upon first entering the shop, the student is taught the principles of chipping, filing, and hand finishing. This occupies the first half of the semester. Machine work is then taken up through a series of exercises on lathe, shaper, planer, drill press, and milling machine. As

soon as accuracy and proficiency are shown on the part of the student, he is assigned to construction work upon engines, dynamos, motors, or machine tools. One hour of the student's time will be required each week in the class room to attend lectures, work problems, or prepare other work assigned by the instructor.

The course in Mechanical Engineering; junior year; first semester; and in the course in Electrical Engineering; sophomore year; second semester; three credits; three laboratory periods. Lab. 2-4:30, T. T. F.; 2-5, M. W.—Mr. Knopf.

10. **Machine Shop II.** A continuation of course 9, devoted to machine construction and milling machine work. Special attention is paid to economical shop methods of doing work.

The course in Mechanical Engineering; junior year; second semester; three credits; three laboratory periods. Lab. 2-4:30, T. T. F.—Mr. Knopf.

11. **Machine Shop III.** A course for students in Electrical Engineering. Special attention is given to the mechanical construction of dynamos, motors, and laboratory apparatus.

Elective in the course in Electrical Engineering; junior year; first semester; two credits; two laboratory periods.—Mr. Knopf.

12 and 13. **Machine Shop IV. and V.** These courses are a continuation of the work outlined in the junior year, and are intended for those who desire to devote further time to this branch, or for those who are engaged upon construction work in the preparation of theses.

Elective; three credits; three laboratory periods.

Prerequisites: Courses 9 and 10.—Mr. Knopf.

14 and 15. **Patternmaking IV. and V.** These courses are a continuation of Patternmaking II. and III. and are intended for engineering students who desire to devote further time to the subject, or for those who are engaged in construction work in the preparation of theses.

The work will consist largely in making patterns for steam and gas engines and other complicated machines.

Elective; three credits; three laboratory periods.

Prerequisite: Course 2.—Assistant Professor Jackson and Mr. Rodgers.

16. **Foundry Practice I.** This course includes a study of the foundry equipment; care and management of cupolas;

mixing and melting of iron. Also moulding in green and dry sand; preparation of cores; casting in iron and brass.

The courses in Mechanical and Electrical Engineering; sophomore year; first or second semester; three credits; three laboratory periods.—Mr. ————.

MINING ENGINEERING AND GEOLOGY

Professor Parks.
Mr. Cunningham.
Mr. Swartley.

GEOLOGY.

1. **Crystallography and Blowpipe Analysis.** This course is intended as a preliminary one, and is a preparation for the work in Determinative Mineralogy, which follows. Only such portion of the subject is especially emphasized as is of practical value in the determination and proper understanding of minerals. The student is given a thorough drill in the more practical portion of the subject. The course is presented through lectures, textbooks, laboratory work, and individual quizzes. In the laboratory work, each student is required to become thoroughly familiar with crystal forms and combinations by working with the wooden crystal models, and later, with the aid of a pocket lens and contact goniometer, to determine the crystal forms of a greater number of natural crystals.

Sophomore year; first semester; four credits; two recitations; two laboratory periods. Rec. 11-12, W. F., Lab. 2-4, T. T.—Professor Parks.

Prerequisites: Chemistry 1 and 2; Mathematics 1 and 4.

2. **Determinative Mineralogy.** In this course, about one hundred and sixty of the most important mineral species are presented by lectures, in which special emphasis is laid on the recognition of minerals by means of their physical properties and crystal forms. The course is not intended to train the student to determine any mineral whatever, but rather to recognize at sight, with the aid of a pocket lens and knife, such minerals as are likely to be met with in actual mining work. With this object in view, as thorough a drill as time will allow is given in the actual handling and determination of minerals in the laboratory. In the work, each student is expected to handle, determine, and be examined on, approximately twelve hundred individual specimens.

Sophomore year; second semester; four credits; two recitations; two laboratory periods. Rec. 11-12, W. F., Lab. 2-4, T. T.—Professor Parks.

Prerequisite: Geology 1.

3. **General Geology.** This study deals with the principles of dynamical, structural, stratigraphic, and historical geology. It includes a discussion of the different agencies, such as atmospheric, aqueous, igneous, and organic, which have been instrumental in producing the earth in its present form and structure. Students make excprsions to places of geological interest to verify points discussed in the class room.

Sophomore year; second semester; three credits; three recitations. Rec. 8-9, T. T.; 2-3, M.—Professor Parks.

Prerequisites: Mathematics 1, 4, and 5; Chemistry 1 and 2.

4. **Engineering Geology.** This includes a discussion of the principles of dynamical and structural geology, as well as a study of the more common minerals and rocks, special emphasis being laid upon structural materials.

Course in Forestry; sophomore year; elective in the course in Civil Engineering; senior year; second semester; three credits; three recitations. Rec. 2-3, M. T. T.—Professor Parks.

Prerequisites: Mathematics 1, 4, and 5; Chemistry 1 and 2.

5. **Economic Geology.** This course deals with the application of the science of geology in industrial relations and operations. It requires an elementary knowledge of chemistry, mineralogy, and geology, and includes the discussion of the mode of occurrence and origin of minerals and ore bodies, especially those containing the precious metals. Attention is also given to other natural products of economic value, such as coal, iron, petroleum, and building stones.

Senior year; second semester; five credits; five recitations. Rec. 8-9, daily.—Professor Parks.

Prerequisites: Geology 1, 2, 3 and 6.

6. **Petrology.** The object of this course is to drill the student on all of the more commonly occurring rocks in such a way as to render their identification reasonably accurate. The methods pursued are purely those applicable to the hand specimens without aid of microscopic sections. The subject is presented by means of lectures and textbooks, supplemented by laboratory work.

Senior year; first semester; three credits; one recitation; two laboratory periods. Rec. 9-10, F., Lab. 10-12, W. F.

Prerequisites: Geology 1, 2, and 3.

7. **Petrography.** This course takes up the optical properties of minerals and follows Petrology by a study of thin sections of rocks by the petrographic microscope. It is an elective course, to be limited to such students as are specially qualified to take it. Hours to be arranged.

Prerequisites: Geology 1, 2, 3 and 6.

8. **Agricultural Geology.** This course deals with the origin and nature of soils from a geological standpoint entirely. A study is first made of the main groups of rocks with reference to structure and chemical composition, and followed by a study of rock weathering and the products derived from rock decay.

The course in Agronomy; senior year; first semester; three credits; three recitations. Rec. 9-10, M. T. T.—Professor Parks.

Prerequisites: Chemistry 1 and 2.

MINING ENGINEERING.

1. **Rock Excavation.** This course deals with a discussion of the various methods and operations involved in opening up and operating quarries as well as tunneling and shaft sinking. Some of the more important subjects treated are: Methods of stripping, drilling, blasting, and crushing rock, and preliminary examination to determine quarry site. Close attention is paid to cost of all the different operations.

Junior year; first semester; three credits; three recitations. Rec. 9-10, M. Tu. W.—Mr. ————.

Prerequisites: Geology 1, 2, and 3.

2. **Mine Surveying and Mining Law.** This course supplements the course in General Surveying (Civil Engineering 2), taken in the Civil Engineering department. The student is taught the methods used in locating and patenting mining claims, and in underground surveying. Instruction is given in carrying the meridian into the mine, laying out the workings, keeping notes, estimating areas and tonnage, the plotting of notes, construction of maps, and many other duties which are usually assigned to the mining engineer. Also a considerable time is given to the study of the laws regulating the location, possession, and operation of mineral rights in the United States.

This will serve as preliminary to the more practical work in connection with the summer school.

Junior year; first semester; three credits; one recitation; two laboratory periods. Rec. 9-10, Tu., Lab. 8-10, M. W.

Prerequisite: Civil Engineering 2.

3. **Mining I.** This is a study of the various methods used in securing the mineral products, as well as the general management of mines. The subject includes methods of timbering; methods of mining, pumping, ventilation, transportation, hoisting, mine sampling, and reporting; installation of machinery, and surface improvements. The subject is presented largely through lectures and directed reference work.

Junior year; second semester; three credits; three recitations. Rec. 3-4, M. W. F.

Prerequisites: Geology 1, 2, and 3.

4. **Mining II.** This course takes up in detail the cost of extracting gold, silver, copper, iron, and other metal ores, as well as coal, from mines under varying conditions.

Senior year; first semester; three credits; three recitations. Rec. 8-9, M. W. F.

Prerequisite: Mining I.

5. **Ore Dressing I.** A discussion of the various methods of concentration and the mechanical preparation of ores for metallurgical treatment. The subject is studied under the following main divisions: jaw and gyratory breakers; rolls; stamps; special, and fine grinding apparatus, sizing apparatus, such as the various types of screens and classifiers; concentrating machinery, including jigs, tables, and vanners.

Senior year; first semester; (1911-1912, second semester); three credits; two recitations; one laboratory period. Rec., 11-12, M. W., Lab. 10-12, F.

Prerequisites: Mining Engineering 2, 3, and 12; Physics 3 and 4.

6. **Ore Dressing II.** A continuation of Ore Dressing I.

Senior year; second semester; three credits; two recitations; one laboratory period. Not given 1911-1912.

Prerequisites: Geology 2 and 3; Mining Eng. 7; Physics 3 and 4.

7. **Fire Assaying I.** Instruction is given in the assaying of gold, silver, and lead in ores and metallurgical products by scorification and crucible methods. The student is given a

thorough drill in the theory and reactions involved, supplemented largely by laboratory work, the subject being treated from a scientific and rational point of view rather than from the "rule of thumb." Each student is required to make a large number of assays upon previously sampled pulps, which he must check within very close limits.

Junior year; first semester; three credits; one recitation; two laboratory periods. Rec. 9-10, Th., Lab. 2-4:30, T. T.

Prerequisites: Chemistry 1, 2, and 6; Geology 2.

8. **Introduction to Metallurgy.** This course is an outline of the metallurgy of all the common metals except iron, and is devoted to a description of the processes of obtaining the metals from their ores, as well as the refining of the metals. Some of the detailed parts of the study are: the physical properties of metals; refractory materials; construction and operation of the various types of furnaces; fuels, calorimetry, and pyrometry.

Elective; first semester; three credits; three recitations.

Prerequisite: Geology 2.

9. **Metallurgy of Iron and Steel.** This course is a discussion of the iron industry as we find it today. It includes the manufacture and purification of pig iron; manufacture of wrought iron and crucible steel; Bessemer, open-hearth, cementation and crucible processes for steel; mechanical treatment of steel; heat treatment of steel, etc.

Junior year; second semester; three credits; three recitations. Rec. 10-11, M. Tu. W.

(Senior year, 1911-1912.)

Prerequisites: Chemistry 1 and 2; Physics 3 and 4.

10. **Metallurgy of Gold and Silver.** This course, as the name indicates, is a study of the different processes for separating gold and silver from their ores. It includes the stamp mill and amalgamation, the cyanide process, hyposulphate process, chlorination process, and other miscellaneous processes.

Senior year; first semester; three credits; three recitations. Rec. 10-11, M. T. T.

Prerequisite: Geology 2.

11. **Metallurgy of Copper.** This is a more advanced course in metallurgy, and includes a thorough and detailed study of the underlying principles upon which methods are based, rather than descriptions of processes or apparatus. It is the aim of this course to deal largely with the reasons why instead of the

means how. Although the work deals extensively with copper, the principles are common to the whole subject of metallurgy.

Elective; senior year; first semester; three credits; three recitations. Rec. 8-9, T. T. 3-4, M.

Prerequisite: Geology 2.

12. **Mining Engineering Summer School.** Immediately after the close of the College year in June, the junior and senior students go into some prominent mining district for a few weeks of summer work in surveying, and mine and metallurgical inspection. Visits are made to mills and smelters in operation. The work is planned to develop the student's power of observation, and the ability to report concisely such observation. A large part of the time is devoted to making a survey of some mine.

13. **Fire Assaying II.** A continuation of course 7.

Junior year; second semester; three credits; one recitation; two laboratory periods. Rec. 9-10, F., Lab. 2-4:30, T. T.

SCHOOL OF COMMERCE.

Professor Bexell.
Professor Crawford.*
Professor Horner.
Professor Hetzel.
Assistant Professor ————
Mr. Moore.
Mrs. Moore.
Mr. Lemon.

BUSINESS ADMINISTRATION.

A. **Commercial Arithmetic I**. Successful accountancy is based largely upon the ability to use figures. The student is supposed to have acquired fair ability at figures in the grades, but in this course a review of all the essential operations is given. Special stress is laid on short methods and daily drills. Rapid calculation, computations in the various phases of percentage, as applied to commercial transactions, will receive special emphasis. A great variety of commercial forms are studied in this course as a preparation for the formal work in bookkeeping.

Secondary course; first year; first semester; five credits; five recitations. Rec. 2-4, daily.—Mr. Lemon.

B. **Bookkeeping**. The fundamentals of bookkeeping by double and single entry. The laws of debit and credit are studied and illustrated by correspondence and office practice; exercises in checking, construction and interpretation of balance sheets; much practice in commercial correspondence; writing bills, invoices, receipts, bills of lading, legal forms, etc.

Secondary course; first year; second semester; five credits; five recitations. Rec. 2-4, daily.—Mr. Lemon.

E. **Business Methods I.** (a) Accounting and business management; farm bookkeeping and business forms; organization of a model farm from a financial point of view; marketing products; transportation and markets; household and personal accounts.

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*On leave of absence.

(b) Farm Arithmetic. Measurement of land and description of boundaries; measurement of lines, stocks, etc.; conversion of cubic measures into measures of weight and capacity; computation of inventories, bills, and pay rolls; dairy arithmetic, etc.

Secondary courses in Agriculture and Mechanic Arts; second year; Forestry; first year; first semester; two credits; two recitations. Rec. 8-9, T. T.; 4-5, W. F.—Mr. Moore.

F. **Business Methods II.** The general principles of common and statutory law are discussed and explained; special phases of law affecting the farm, such as titles to real estate, deeds, mortgages, county records, etc.; landlord and tenant; eminent domain, and right of way; water rights and boundaries; laws governing shopping, insurance, banking, etc.; court proceedings.

Secondary courses in Agriculture and Mechanic Arts; second year; Forestry; first year; second semester; two credits; two recitations. Rec. 8-9, T. T.; 4-5, W. F.—Mr. Moore.

1. **Accounting I.** A thorough course in modern accounting as practiced in the best business houses throughout the country. Accounting terminology; the laws of debit and credit; business practice in retailing, wholesaling, banking, and transportation. The student becomes familiar with a great variety of labor-saving forms used in the modern business office; the actual forms used by typical concerns in all parts of the country are studied and compared. Manifolding and labor-saving devices of all kinds are studied with constant view to secure greater accuracy and to diminish work.

Freshman, and second year of Secondary course; first semester; four credits; four laboratory periods. 2-4, M. Tu. W. F.—Professor Bexell.

2. **Accounting II.** This work is carried on between fellow students and commercial schools in the leading lines of business, affording excellent drill in correspondence and office practice.

The College maintains completely equipped offices in banking and wholesaling. On completion of the theoretical work and the business practice, the student is placed as manager of one of the offices and held responsible for all its operations.

Freshman, and second year of Secondary course; second semester; four credits; four laboratory periods. Lab. 2-4, M. Tu. W. F.—Professor Bexell.

3. **Advanced Accounting and Business Management.** A thorough study of bank and advanced accounting and auditing. Various systems are studied and compared. Office practice and intercommunication work similar to that described under courses 1 and 2 form a part of this course; but here the student assumes the management of the office, while thet routine work is done by less advanced students. Recitations, lectures, and reports.

Sophomore year; first semester; five credits; five laboratory periods. Lab. 2-4, daily.—Professor Bexell.

4. **Corporation Accounting and Auditing.** (a) A practical application of previous courses in accounting and business management as applied to corporations. Manufacturing, railroading, and merchandising receive special attention.

(b) **Cost Accounting.** The theory and practice of cost accounting. The various methods used in England and America.

Sophomore year; second semester; five credits; five laboratory periods. Lab. 2-4, daily.—Professor Bexell.

5. **Business Organizations and Management.** (a) Firms and Joint Stock Companies. A study of the internal management of a large business; the different duties of the various departments; the advantages of different methods of organization as regards economy and the preservation of good will. Value of trade-marks, patents, local interest, etc.

(b) Corporations. The growth of corporations; their causes and forms; the promotion, financiering, incorporation, and capitalization of corporate consolidation; their organization and securities; position and relation of stockholders and directors; receiverships and reorganizations.

Junior year; first semester; four credits; two recitations; two laboratory periods. Rec., 9-10, T. T. Lab., 2-4, W. F.—Professor Bexell.

6. **Theory and Practice of Advertising.** A study of the fundamental principles of modern advertising. Special emphasis is given to the peculiarities of composition in newspaper and circular advertising, proof-reading, effectiveness of design, illustration, coloring, and display, follow-up systems, etc.

Junior year; second semester; four credits; two recitations;

two laboratory periods. Rec., 9-10, T. T. Lab., 2-4, W. F.—Professor Bexell and Mr. Moore.

7. **Public Accounting and Auditing I.** This is a research course under the direction of the professor in charge. Special stress is laid on preparation for Certified Public Accountancy. The course embraces the following subjects: (1) a general course in analyzing accounts of various typical corporations, and the installation of systems best suited to the business in hand; (2) the solution and discussion of difficult problems selected from C. P. A. examinations.

Elective; senior year; first semester; three credits; two recitations; one laboratory period. Rec., 11-12, Th. F. Lab., 2-4, Th.—Professor Bexell.

8. **Public Accounting and Auditing II.** The principles governing an audit of partnerships and corporations of any magnitude according to approved professional methods. The organization and methods of a typical firm of public auditors. The order of procedure in an actual audit. The auditor's reports and certificates. Actual audit of local concerns whenever practicable.

Elective; senior year; second semester; three credits; two recitations; one laboratory period. Rec., 11-12, Th. F. Lab., 2-4, W.—Professor Bexell.

9. **Home and Private Business Management.** This course is designed to cover such business methods as are met with in the daily life of the average citizen. The first half of the course is given to the study of accounting as applied to the household and private business. In connection with this work the subjects of banking, borrowing and lending, buying and selling, and other features of private and home finance are given consideration. In the second part of the course, contracts, negotiable instruments, commercial correspondence, and commercial forms and business organizations are considered to the extent the time permits.

Domestic Science and Art; junior year; first semester; two credits; two recitations. Rec. 4-5, M. W.—Professor Bexell.

10. **Commercial Arithmetic II.** This course is designed as an advanced course in commercial arithmetic. To do successful work in this course, the student should have a thorough knowledge of all the fundamental operations of arithmetic, including the various phases of percentage and interest. Em-

phasis is laid on computations of the more difficult problems connected with partnership and corporation settlements, balance sheets and statements, equation of accounts, partial payments, savings-bank accounts, compound interest, stocks and bonds, life insurance, and annuities, partly for the information obtained in the various subjects and partly for the drill afforded in the use of figures. Daily drills are given in short methods and rapid calculation.

Freshman year; first semester; three credits; three recitations. Rec. 8-9, M. W. F.—Mr. Moore.

STENOGRAPHY.

1. **Stenography and Typewriting I.** (a) Gregg shorthand. After a thorough mastery of the principles of shorthand, special drills in reading and word-building exercises are taken up, followed by a series of "principle" letters which gives the student a thorough and comprehensive review of the entire system.

(b) Touch Typewriting. By the use of a series of specially arranged exercises, the student becomes familiar with the keyboard and learns correct fingering by the touch or "sightless" method. Special attention is given to the proper care and mechanism of the machine. The various standard makes of machines are studied and compared.

Second and sophomore years; first semester; six credits; six laboratory periods. Lab. 2-4, daily.—Mr. Moore.

2. **Stenography and Typewriting II.** A continuation of course 1, with special emphasis on the application of principles. Special shorthand penmanship drills are taken up with a view to further developing the accuracy and speed of the student. Dictation covering various lines of business correspondence is given and must be transcribed on the machine. Manifolding, stencil cutting, and the use of the mimeograph, neostyle and letterpress are learned.

Second and sophomore years; second semester; six credits; six laboratory periods. Lab. 2-4, daily.—Mr. Moore.

3. **Advanced Stenography and Typewriting I.** (a) The student must have become thoroughly grounded in the principles of shorthand and have acquired a speed of a hundred words a minute before taking up this work. Various forms of correspondence, legal documents, speeches, specifications, ed-

itorial matter, court testimony, etc., are taken up. Much time is devoted to transcribing, and great care must be given to the arrangement and neatness of the transcribed work. Each student will be called upon to serve as stenographer to different members of the faculty from four to six weeks during the last semester of his course.

(b) Typewriting, Manifolding, and Filing. An advanced course for those who specialize in stenography. In addition to the work given in Stenography 1 and 2, the student makes copies of correctly written correspondence, legal forms, etc., also machine dictation. Much time is devoted to manifolding and filing.

Junior year; first semester; five credits; five laboratory periods. Lab. 2-4:30, daily.—Mr. Moore.

4. **Advanced Stenography and Typewriting II.** A continuation of Advanced Stenography I.

Junior year; second semester; five credits; five laboratory periods. Lab. 2-4:30, M. Tu. W. Th.—Mr. Moore.

5. **Reporting and Office Practice I.** Reports of lectures. The student is required to submit not less than twenty verbatim reports of lectures and addresses during the year. The reports must be properly transcribed and submitted to the teacher for approval.

Elective; senior year; first semester; three credits. Hours to be arranged.

6. **Reporting and Office Practice II.** In this course the student is required to spend a large share of his time in the courts, and to render at least twenty verbatim reports, properly transcribed. A large amount of additional legal work will be required.

The finished work of the entire course must be passed on by the dean and the professor in charge.

Elective; senior year; second semester; three credits; three recitations. Hours to be arranged.

7. **Typewriting III.** Commerce, sophomore year; elective in all other courses; first semester; two credits; two laboratory periods. Lab. 4-5, M. Tu. W. F.

8. **Typewriting IV.** Continuation of Typewriting III. Elective in all courses; second semester; two credits; two laboratory periods. Hours to be arranged.

9. **Orthography I.** A review course in spelling, defining, choice of words, punctuation, capitalization, and the general

structure of words with special emphasis on the best commercial usage.

Secondary course; second year; first semester; one credit; one recitation. Rec. 8-9, M.—Mrs. Moore.

10. **Orthography II.** A continuation of course 9.

Secondary course; second year; second semester; one credit; one recitation. Rec. 11-12, Tu.—Mrs. Moore.

POLITICAL ECONOMY.

1. **The Elements of Economics.** A discussion of wealth; nature and requisites of production; exchange and distribution; the relation of the production of raw material to manufacturing and exchange of products; diminishing returns from natural agents; labor and its increase; efficiency of production; credit, interest, wages, prices, and rent; taxation, public debt, free trade, and protection; money and banking; the labor problem and co-operation.

Sophomore year; first semester; three credits; three recitations. Rec. 9-10, M. Tu. Th.

2. **Commercial Geography.** The main topics treated are: natural conditions affecting commerce, human control of commerce, transportation and commercial routes; discussion of the leading countries of the world under the following heads: climate, natural features, distribution of leading products, vegetable food products, vegetable and animal fibres, wood crop, minerals, manufacture, agriculture, and such collateral topics as may be necessary to supplement the work outlined. This course presupposes a fair knowledge of mathematical and political geography, and of general history.

Sophomore year; second semester; three credits; three recitations. Rec. 4-5, M. W. F.—Professor Horner.

3. **Money and Banking.**

(a) **Money.** Money as a commodity, coinage, legal tender, gold standard, International Monetary Conferences, colonial bills of credit, revolutionary bills of credit, greenbacks, Confederate currency, silver dollars, panic of 1893, present conditions and problems.

(b) **Banking.** Practice and legal principles of banking, methods of raising capital, modes of organizing national and state banks, trust and finance companies, clearing houses, their practice, regulations, and importance; resources of a bank, and modes of lending them; duties of directors, president, cashier, tellers, bookkeepers, etc., public and private examinations and audits.

Junior year; first semester; three credits; three recitations. Rec. 11-12, M. Tu. W.

4. **Corporation and Public Finance.**

(a) **Public Finance.** History of financial systems, theories of public expenditures, various methods and practices of taxation and other sources of income, public credit, relations of the Federal Treasury to our monetary system; the preparation of financial budgets and reports form an important part of this course.

(b) **Funding Operations and Corporation Finance.** Money, funds, and credit, obtaining funds by inheritance, exchange, sales of commercial credit, long-time paper, etc. Funding operations by the United States Treasury; the savings bank, building and loan associations, commercial banks, trust companies, brokers, and insurance companies. The general practice of funding corporations and other large business enterprises.

(c) **Insurance.** Origin, purpose, development and growth of the various kinds of insurance, especially Fire, Life, Casualty; the various plans, policies, and rates will be discussed; computation of tables, and the various phases of actuarial practice will receive attention.

Junior year; second semester; three credits; three recitations. Rec. 9-10, M. W. F.

5. **Advanced Economics.** **(a) Lectures and recitations.** Three main purposes are kept in view in this course: a clear analysis of the mechanism, functions, and philosophy of industrial society; a discussion of the fundamentals of wealth and monopoly, their origin, uses, and abuses; a dispassionate discussion of economic topics that have become political questions. Much reading and many reports are required.

(b) **Research Course.** Special stress is laid on the economic history of the United States. Reading of reports and theses under the direction of the professor in charge.

Senior year; second semester; three credits; three recitations. Rec. 8-9, M. Tu. Th.

6. **History of Commerce.** (a) Trade. The development in Egypt, Greece, Rome, Florence, Mediaeval Europe, etc., down to and including the commercial nations of modern

times. Special attention is given to materials and machinery of commerce to trade routes, and to the relations between commercial developments and other branches of the history of civilization. The principles of modern wholesaling and retailing are discussed, and a description given of brokerage, jobbing, the commission business, general and special stores, department stores, and mail order houses.

(b) **Transportation.** A study of the American railway system, the several branches of the railway service, and the questions of public aid and public control. A study of inland navigation and ocean shipping, with special reference to the United States. Lectures, assigned readings, and reports.

Senior year; first semester; three credits; three recitations. Rec. 10-11, Th. F.; 3-4, M.—Professor Horner.

7. **Production of Raw Materials.** A survey of latent commercial possibilities, surface indications, unexplored regions, probable demands upon the earth through future inventions; possible reclamation of inhospitable regions and of desert areas; effect of known latent resources upon the expectations and policies of mankind. Present resources of leading nations are then considered, together with their influence upon trade routes. Agriculture, Forestry, Mining, and Fishing receive special attention.

Elective; junior or senior year; first semester; three credits; three recitations. Hours to be arranged.

8. **Manufacturing.** A study of manufacturing processes through which such commodities as wheat, cotton, sugar beets, tobacco, and lumber pass, in going from the producer to the consumer. The work in indirect production considers cotton and woolen goods, steel, boots and shoes, etc. The history, development, and economic effects of labor-saving inventions.

Elective; junior or senior year; second semester; three credits; three recitations. Hours to be arranged.

10. **Rural Economics.** (a) The fundamental principles of Production, Distribution, and Exchange, with special reference to rural life.

The financial management of the farm receives special attention.

(b) **Rural Law.** (See Political Science 6.)

The course in Agriculture; sophomore year; first semester;

three credits. Rec. 8-9, M. W. F.; 10-11, M. T. T.—Professor Bexell.

POLITICAL SCIENCE.

A. **Civil Government and Administration.** (a) Civil Government. Our European ancestors; origin of states and state institutions. English and American governments compared; federal and state constitutions; state and foreign service; the executive departments; federal and state powers; political parties and issues.

(b) Federal and State Administration. A survey of the administrative activities of federal, state, and municipal governments; governments from the sociological point of view. The financial operations, preparation of budgets and reports, will be considered.

Secondary course; second year; first semester; two credits; two recitations. Rec. 11-12, T. T.—Professor Horner.

B. **Elementary Commercial Law.** An elementary course, covering the law of contracts; negotiable instruments; agents; partnership, real estate, etc. Adapted for students with limited preparation.

Secondary course; second year; first semester; three credits; three recitations. Rec. 11-12, M. W. F.—Mr. Moore.

1 **Commercial Law I.** (a) Contracts in General. Formation of contracts; offer, acceptance, form, and consideration; competence of parties, consent, and legality of subject matter. Operation of contracts, including limit of obligations and assignments; interpretation, rules of evidence and construction; discharge of contracts; the agreement performance, breach of contract, etc.

(b) Negotiable Instruments. Maker's, acceptor's, drawer's, and indorser's contracts; proceedings before, upon, and after dishonor; proceedings in protesting; accommodation papers; grantor and surety; holder's position, defense, equities, agency insurance, etc.

Senior year; first semester; three credits; three recitations. Rec. 11-12, M. Tu. W.—Professor Hetzel.

2. **Commercial Law II.** (c) Partnership Law. Formation of partnerships, essentials, liability of members, capital, profits, good-will, individual and firm property; agency for partners; dissolution, winding up, priority of distribution, etc.

(d) Corporation Law. Kinds, formation, powers, liabilities, ownership, shares, subscription, calls, notice, transfers, management, officers, directors, contractional powers, dividends, dissolution, are discussed fully from the legal point of view. The Case method is used throughout the entire course. Lectures, discussions and reports.

Senior year; second semester; three credits; three recitations. Rec. 11-12, M. Tu. W.—Professor Hetzel.

3. **Constitutional Law and Politics.** (a) Constitutional Law. The Constitution; rise of the American Union; distribution and powers of the Government; powers of Congress; powers of the executive; the judicial departments; checks and balances of governments; governments of territories and colonies; admission of new states; amendments to the Constitution; civil rights and their guarantees; protection of persons accused of crimes; protection of contracts and property, etc. Lectures, readings, reports and thesis.

(b) American Politics. Origin of political parties in the United States; changes, growth and development; party platforms.

Elective for juniors and seniors; first semester; three credits; three recitations. Rec. 10-11, M. Tu. W.—Professor Hetzel.

4. **State and Municipal Government.** A study of the functions of state government; the machinery of state government; political parties in state government; special study of the government of the State of Oregon; municipal government including county, town and city government.

Elective for junior and seniors; second semester; three credits; three recitations. Rec. 10-11, M. T. W. —Professor Hetzel.

5. **International Law.** Persons concerned; rights and duties of states; territorial jurisdiction; jurisdiction on the high seas; agents of the state treaties; settlements of disputes; war and its effects; military occupation; neutrality, contraband, blockades, etc.

Elective for seniors; first semester; three credits; three recitations. Hours to be arranged.—Professor Hetzel.

6. **Rural Law.** The general principles of common and statutory law are discussed and explained. Special phases of law affecting the farm, such as titles to real estate, deeds, mort-

gages, etc.; landlord and tenant; eminent domain, and rights of way; water rights, and boundaries; laws governing shipping, insurance, banking, etc.; court proceedings.

Part of Economics 10; one credit if taken alone. Given in connection with Rural Economics; second third of second semester. Hours to be arranged.

7. **International Trade and Transportation.** (a) Commercial Treaties. An historical and critical study of important commercial treaties; protective tariffs, and the theory of reciprocity; a survey of the chief questions connected with the history of our foreign relations from the appointment of the Committee on Foreign Relations in the Continental Congress to the present time.

(b) The Consular Service. The growth and importance of the consular service; the appointment, distribution, duties, and necessary qualifications of consuls. Studies and discussions of consular reports.

(c) International Transportation. The course deals especially with the merchant marine of the principal nations of the world. Importance of ship subsidies, inland, waterways, canals, etc.

Elective; senior year; second semester; three credits; three recitations. Hours to be arranged.

Thesis. A thesis will be required in each of the elective courses. An additional credit may be earned in certain courses by writing a thesis on an approved subject. The subject must be announced by the dean to the College Council during the first semester, and a finished copy must be in the hands of the professor in charge not later than May first. When approved, a bound (either typewritten or printed) copy must be deposited in the College Library.

Special Lectures. A series of lectures on practical business subjects will be given during the year by prominent business men of the State. Following is a tentative list of subjects during the present year: Present Problems in Finance; Organization of a Bank; Organization of a Railroad; Organization of a Department Store; The Fishing Industry of Oregon; The Lumber Industry of Oregon; The Business Side of Farming; Commercial Expansion of the United States; Duties and Responsibilities of the Public Accountant; Captains of Industry;

The Industrial Manager; Duties and Responsibilities of the Bank Cashier; Education for Business; The Power of Advertising.

PENMANSHIP.

Professor Horner.

A. **Penmanship I.** Students entering the first year are expected to have acquired a good hand in the grades, but considerable time is devoted during the first year to mastering the best form of business writing and lettering.

Secondary course; first year; first semester; one credit; two periods. Rec. 8-9, Tu.; 11-12, F.—Professor Horner.

B. **Penmanship II.** A continuation of course A.

Second semester; one credit; two periods. Rec. 8-9, Tu.; 11-12, F.—Professor Horner.

1. **Advanced Penmanship I.** Special emphasis is laid on rapid business writing, correct forms of business papers, lettering and designing.

Freshman year; first semester; one credit; two periods. Rec. 4-5, Tu. Th.—Professor Horner.

2. **Advanced Penmanship II.** A continuation of course I.

Second semester; one credit; two practice periods. Required of all commercial students; elective to others. Rec. 4-5, Tu. Th.—Professor Horner.

3. **Advanced Penmanship III.** A continuation of course 2.

Sophomore year; first semester; one credit; one period. Rec. 10-11, W.—Professor Horner.

4. **Advanced Penmanship IV.** A continuation of course 3.

Sophomore year; second semester; one credit; one period. Rec. 4-5, Tu.—Professor Horner.

PHARMACY.

Professor McKellips.
Mr. Callaway.

1. **General Pharmacy I.** This course is a general introduction to the subject of Pharmacy, given by means of a series of lectures wherein the student is made familiar with the conditions which led to the origin of the practice of Pharmacy as a profession separate and distinct from that of medicine. Attention is directed to the purposes of the profession, to the scientific principles underlying it, and to the proper means for comprehending these facts with a view to their intelligent application. The drugs, chemicals, and prepared medicines of the U. S. Pharmacopoeia are made the subject of a series of recitations.

Junior year; first semester; two credits; two recitations. Rec. 10-11, W. F.—Professor McKellips.

2. **Nomenclature.** The Latin language is universally recognized as the language of science. The names of all plants and animals and of many natural objects in the material world are recorded in this language. These Latin names, in so far as they have connection with the profession of pharmacy, are made the subject of systematic study.

Junior year; first semester; one credit; one recitation. Rec. 10-11, Th.—Professor McKellips.

3. **Pharmacognosy I.** This subject deals with the scientific classification of the plants and animals which furnish the crude drugs used in pharmacy. The relation existing between the various drugs is shown, and the student is thoroughly drilled in memorizing the classification and in learning from what part of the world the drugs are obtained. He is instructed as to what particular portion of the plant or animal finds use in medicine and learns to recognize by some physical characteristic—appearance, odor, taste, etc.—samples of all the important drugs. Extensive cabinets of sample drugs are kept for this purpose.

Junior year; first semester; one credit; one recitation. Rec. 11-12, Th.—Profesor McKellips.

4. **Pharmacognosy II.** Continuation of course 3.

Junior year; second semester; two credits; two recitations. Rec. 9-10, T. T.—Professor McKellips.

5. **Therapeutics and Doses.** The definition of medical and therapeutical terms, the classification of medicines into groups according to their therapeutical action, and the consideration of the subject of dosage, are matters to which the attention of the student is directed at this time.

Junior year; first semester; two credits; two recitations. Rec. 11-12, W. F.—Professor McKellips.

6. **General Pharmacy II.** A continuation of Pharmacy 1, to which is added the feature of laboratory practice. The student takes up the various classes of pharmaceutical preparations and becomes familiar with the correct manner of their manufacture.

Experience has demonstrated the value of the laboratory as a factor in technical and scientific education. For this reason the course in pharmacy as offered at this institution is one in which this feature is given unusual prominence.

From the crude drugs, as barks, leaves, roots, and seeds, the student manufactures finished pharmaceuticals, such as tinctures, fluid extracts, elixirs, tablets, pills, etc.

Using the United States Pharmacopoeia as a laboratory manual, the student has the official requirements for purity and strength constantly before him, his attention thus being directed to these matters in a practical way.

Junior year; second semester; four credits; one recitation; three laboratory periods. Rec. 11-12, M., Lab. 10-12, T. T. F.—Mr. Callaway.

7. **General Pharmacy III.** A continuation of course 6, in which the manufacture of the more difficult pharmaceuticals is taken up. Attention is given to the higher class of toilet preparations, as well as to galenicals.

Senior year; first semester; two credits; two laboratory periods. Lab. 2-4, M. W.—Mr. Callaway.

8. **Materia Medica and Toxicology I.** As indicated by the name, this course is devoted to the study of "Medicinal Materials." All substances which find general use in medicine are here given attention. All are classified with respect to the action they have upon the human system. Crude drugs are grouped according to the plant constituents—alkaloids, glucosides, volatile oils, oleoresins, etc.—which they contain.

Pharmaceutical preparations are studied with respect to composition and strength; chemicals, according to solubility, medicinal activity, and incompatibility.

The student is drilled in the recognition of pharmaceutical preparations and of chemicals. The many common names, or synonyms, in use in connection with materia medica are memorized.

One hour a week is devoted to the consideration of Toxicology. The different classes of poisons—caustics, irritants, convulsants, paralysants, narcotics, asphyxiants, etc.—are taken up and studied according to the characteristic symptoms they produce, the method of counteracting and preventing their harmful effects, and the antidote peculiar to each. This course is especially designed to meet the needs of the pharmacist. Provisions of the law regulating the sale of poisons within the State are explained in detail.

Senior year; first semester; three credits; three recitations. Rec. 9-10, M. W. F.—Professor McKellips.

9. **Materia Medica and Toxicology II.** A continuation of course 8.

Senior year; second semester; three credits; three recitations. Rec. 11-12, M. T. T.—Professor McKellips and Mr. Callaway.

10. **Prescription Practice I.** This work is sometimes spoken of as "extemporaneous Pharmacy," and is justly regarded as the division of the profession belonging to the expert. The ability to compound, properly, intricate formulas at a moment's notice, is an art that can be acquired only by persistent study and painstaking practice. Opportunity for practice of this nature is here given. Prescriptions written by practicing physicians in various parts of the country have been collected. These afford the student practice in reading, itself often a matter of difficulty. Prescriptions presenting various types of incompatibility are compounded, as are others which afford experience in overcoming manipulative difficulties.

Senior year; first semester; three credits; three recitations. Rec. 8-9, M. W. F.—Professor McKellips.

11. **Prescription Practice II.** A continuation of course 10.

Senior year; second semester;five credits; two recitations; three laboratory periods. Rec. 8-9, T. T.., Lab. 8-10, M. W. F. —Professor McKellips.

ZOOLOGY, ENTOMOLOGY, AND PHYSIOLOGY.

Professor Cordley.
Assistant Professor Wilson.
Assistant Professor Safro.
Mr. Sykes.
Miss Edwards.
Dr. Ewing.
Mr. Lovett.

The instruction in this department is designed to give a general survey of the field of Zoology. It aims to develop an interest in the study of native birds, insects and animals, their relation to the plant world, to each other and to man's welfare. By means of lectures, laboratory work, and field observations, the student becomes familiar with the structure and habits of a few representative forms, learns something of their relationships and of the relative economic importance of the various groups and of the biological laws which govern their development. The work is adapted so far as possible to the particular needs of students in Agriculture and Domestic Science and Art. Exceptional opportunities are offered to those who desire to teach Physiology or Nature Study in the public schools. In connection with the courses in Pharmacy, the required work forms a valuable pre-medical course.

The instruction in General and Economic Entomology is intended to provide the student with sufficient training to enable him to identify the common insect pests, understand their habits and life-histories, and apply the most approved methods for their control. The lectures upon Crop Pests also deal with the principal insect diseases of crops and their control.

Advanced students in Entomology are provided with excellent opportunities for special instruction and research work.

The laboratories of the department occupy seven rooms on the third floor of Agricultural Hall and are well supplied with apparatus, reference books, bulletins, periodicals and collections.

1. **Zoology I.** A field and laboratory study of invertebrate animals. The work begins with the study of the single-celled forms, since it is believed that the student can thus best

gain the desired conception of the origin of the activities of higher animals. Consideration is likewise given to the economic importance of these low forms, and their relation to certain diseases of men and of domestic animals. Particular attention is given to the habits of animals, parasitic upon man or upon domestic animals, such as the liver-fluke, tape-worms, trichina and other nematodes; to those which attack cultivated plants like the nematode root-worms, mites, insects, etc.; and to those having food value, i. e., clams, oysters, crawfish, shrimps, crabs, and lobsters. Such other types are studied as are considered necessary to give the student a proper perspective of the invertebrates as a whole and to illustrate various biological laws.

The courses in Agriculture, Commerce, Forestry, and Pharmacy; sophomore year; first semester; three credits; one recitation; two laboratory periods. Rec. 2-3, F.; 3-4, F.; 4-5, Th., Lab., 8-10, W. F.; 10-12, M. W.; 10-12, T. T.—Mr. Sykes, Miss Edwards.

2. **Zoology II.** A continuation of course 1, but dealing with such vertebrate types as amphioxus, lamprey, fishes, frogs, snakes, birds, and mammals. Together with course 1, it is designed to give the student a general idea of the animal kingdom as a whole, and of the relative economic importance of the various groups.

The courses in Agriculture, Commerce, Forestry, and Pharmacy; sophomore year; second semester; three credits; one recitation; two laboratory periods. Rec. 3-4, Tu.; 3-4, Th.; 4-5, Th., Lab. 8-10, W. F.; 10-12, M. W.; 10-12, T. T.—Mr. Sykes, Miss Edwards.

3. **Zoology III.** A brief course designed to give the students in Domestic Science and Arts some conception of the structure and physiological activities of animals, as a basis for the work in physiology and hygiene. Particular attention is also given to those forms, such as the housefly and mosquito, which are of importance from the standpoint of public and private sanitation.

The course in Domestic Science and Art; sophomore year; second semester; three credits; two recitations; one laboratory period. Rec. 9-10, W. F., Lab. 2-4, M.—Mr. Sykes.

4. **Physiology and Hygiene I.** This course includes a study of the chief functions of the human body and of the principles

of hygiene. As a foundation for the study of function, the laboratory course includes some work upon the gross anatomy and the histology of the various tissues and organs of a typical mammal. It also includes experiments and demonstrations with foods as the source of energy, their digestion and absorption, the composition and circulation of the blood, nerve-muscle reactions, etc. Special emphasis is placed upon the relation of pure air, mental and physical habits, food, dress, bathing, work, and recreation to health and work capacity.

The course in Domestic Science and Art; junior year; and the course in Pharmacy; sophomore year; first semester; three credits; one lecture; two laboratory periods. Elective in the course in Agriculture. Rec. 2-3, M.; 9-10, M., Lab. 8-10, T. T.; 2-4, T. T.; 2-4, W. F.—Miss Edwards, Mr. Sykes.

5. **Physiology and Hygiene II.** A continuation of course 4. Courses 4 and 5 are especially valuable to those who expect to teach physiology in the public schools, and in connection with the work in Pharmacy, form a valuable pre-medical course.

The course in Domestic Science and Art; junior year; and the course in Pharmacy; sophomore year; second semester; three credits; one recitation; two laboratory periods. Elective in the course in Agriculture. Rec. 2-3, M.; 9-10, M., Lab. 8-10, T. T.; 2-4, T. T.; 2-4, W. F.—Miss Edwards, Mr. Sykes.

8. **Introductory Entomology.** An introduction to the study of insects by lectures, laboratory and field exercises. The laboratory work consists of a preliminary study of the anatomy of the grasshopper with comparative work upon other types. Sufficient field work in collecting, and laboratory work in properly mounting and classifying insects, is provided to make the student familiar with the principal order of insects. In this and succeeding courses in Entomology the rearing of economic and other forms is carried on parallel with other work to gain familiarity with the development and habits of insects. Each student is required to familiarize himself with the life history, habits, and means of controlling some insect of economic importance.

Elective in the courses in Agriculture and Domestic Science and Art; required in Forestry; junior or senior year; first semester; three credits; one recitation; two laboratory periods.

Rec. 3-4, M., Lab. 2-4, W. F.—Professor Cordley or Assistant Professor Wilson.

Students taking major work in Entomology will add two additional laboratory periods.

Prerequisites: Zoology 1, 2.

9. **Entomology of Orchard and Small Fruits.** An intensive study of the more important insect enemies of the apple, pear, prune, plum, cherry, currant, gooseberry, bramble fruits, and strawberry, and the critical examination of the methods to be employed in combating them. Each important pest will be studied in the field and laboratory with the view to become thoroughly familiar with the appearance of the insect and its work in all its stages of development.

Elective in the course in Agriculture; junior or senior year; second semester; three credits; two recitations; one laboratory period. Rec. 3-4, M., Lab. 2-4, W. F.—Professor Cordley or Assistant Professor Wilson.

Prerequisite: Zoology 8.

10. **Entomology of Truck and Field Crops.** A similar intensive study of the insect enemies of celery, onion, beets, cabbage, kale, clover, vetch, potato, hops, corn, wheat, and oats.

Elective in the course in Agriculture; junior or senior year; second semester; three credits; two recitations; one laboratory period. Hours to be arrange.d.—Professor Cordley or Assistant Professor Wilson.

Prerequisite: Zoology 8.

11. **Forest Entomology.** A study of the insects destructive to forest trees and forest products, and the insect enemies of reforestation and the measures by which the injuries may be avoided or reduced.

The course in Forestry; junior year; second semester; three credits; two recitations; one laboratory period. Rec. 2-3, M.; 4-5, W., Lab. 4-6, F.—Professor Cordley or Assistant Professor Wilson.

Prerequisite: Zoology 8.

12. **Advanced Entomology I.** This course is designed for those who desire to specialize in Entomology. The instruction includes lectures and reference reading upon the biology of the principal families of insects, supplemented by laboratory studies of typical life-histories. Considerable time is devoted to studying the habits of insects, particularly injurious species,

in the field; to collecting, rearing, mounting, and classifying them; and to becoming familiar with entomological methods and literature.

Elective in the courses in Agriculture and Domestic Science and Art; junior year; second semester; five credits; two recitations; three laboratory periods. Hours to be arranged.—Professor Cordley or Assistant Professor Wilson.

13. **Advanced Entomology II.** A continuation of course 11.

Elective in the courses in Agriculture and Domestic Science and Art; senior year; first semester; five credits; two recitations; three laboratory periods. Hours to be arranged.—Professor Cordley or Assistant Professor Wilson.

14. **Advanced Entomology III.** A continuation of courses 11 and 12.

Elective in the courses in Agriculture and Domestic Science and Art; senior year; second semester; five credits; two recitations; three laboratory periods.

In connection with courses 11, 12, and 13, the student will be required to present a thesis detailing the results of a systematic study of some restricted group of insects or of the biology of some particular species or group of species. Hours to be arranged.—Professor Cordley or Assistant Professor Wilson.

15. **Beekeeping I.** A course in the theory and practice of keeping bees for profit, and in relation to fertilization of orchard trees. The College has an apiary in which students will be able to become fully acquainted with modern apicultural methods.

Elective in the courses in Agriculture and Domestic Science and Art; first semester; one credit; one laboratory period. Hours to be arranged.—Assistant Professor Wilson.

16. **Beekeeping II.** A continuation of course 15.

Special attention will be given to bee diseases during a part of this semester.

Elective in the courses in Agriculture and Domestic Science and Art; second semester; one credit; one laboratory period. Hours to be arranged.—Assistant Professor Wilson.

18. **Embryology.** A study of the development of the chick designed particularly to make the student more proficient in microscopical methods, such as killing, fixing, imbedding, sectioning, staining, reconstruction from serial sections.

Elective in the courses in Agriculture and Domestic Science and Art; junior or senior year; second semester; three credits; one recitation; two laboratory periods. Hours to be arranged. —Mr. Sykes.

Prerequisites: Zoology 1, 2.

19. **Histology.** A study of animal tissues accompanied by laboratory practice in histological technique.

Elective in courses in Agriculture; second semester; three credits; one recitation; two laboratory periods. Hours to be arranged.—Mr. Sykes.

20. **Seminar I.** Senior and graduate students in Entomology. Reading, discussing and abstracting the leading articles upon Entomology as they appear in the scientific journals, horticultural press, current magazines and experiment station literature.

Senior year; first semester; one credit. Hours to be arranged.

21. **Seminar II.** A continuation of course 20.

Senior year; second semester; one credit. Hours to be arranged.

Any of the above courses may be elected as a minor upon consultation with the instructor. Students electing major work for a degree in this department will be required to take courses 1, 2, and 3 and to carry an equivalent of five credits throughout the junior and senior years. Graduate courses leading to the Master's degree may be arranged for upon consultation with the head of the department and the Committee on Advanced Degrees.

BOTANY AND PLANT PATHOLOGY.

Professor Jackson.
Mr. Lawrence.
Mr. Griffiin.*
Miss Gilkey.*
Mr. Bailey.
Miss ....
Mr. ....

The courses offered in the department of Botany and Plant Pathology aim not only to give the student a broad knowledge of plants, their structure, activities and relationships; but to show wherein the science of Botany is related to the problem of every-day life and the home, and to the practice of Agriculture, Pharmacy, Forestry, and Domestic Science and Art.

In the arrangement of work in the courses offered, the point of view of the several groups of students is kept constantly in mind and the work adapted to their needs. In order to make this possible in courses taken by students pursuing different lines of work, separate sections are provided.

The work of the department is carried on by means of recitations, lectures and laboratory work. Texts and reference books are used mainly as an aid in correlating the facts brought out in the study of the plants in the laboratory. Living plants are used wherever possible. Drawing is made an important feature of the laboratory work, because the student, in order to draw accurately, must have observed clearly.

Particular attention is given to students desiring to take their major work in this department. Exceptional opportunities are offered to students who wish to prepare themselves for teaching Nature Study and Botany in the public schools and to those who wish to specialize in Botany and Plant Pathology preparatory for investigation work.

A. **Essentials of Botany I.** This course provides an introduction to Plant Life and deals with the nature of plants; their structure; how plans grow and are propagated; how plants absorb and manufacture food; their relation to each other and to their environment; kinds of plants, etc.

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*On leave of absence.

Throughout the course the relations of Botanical Science to every-day life, to household science, home gardening, etc., will be emphasized.

The Secondary course in Domestic Science and Art; second year; first semester; two credits; one recitation; one laboratory period. Rec., 2-3, Tu. Lab., 2-4, Th.

B. **Essentials of Botany II.** A continuation of Botany A.

The Secondary course in Domestic Science and Art; second year; second semester; two credits; one recitation; one laboratory period. Rec., 2-3, Th. Lab., 2-4, Tu.

C. **Plant Relations.** A study of plants in their mutual relationships, their relations to animal life and to man, and to their physical environment.

The Secondary courses in Agriculture, Commerce, and Forestry; second year; second semester; two credits; two recitations. Rec. 8-9, T. T.; 3-4, M. W.

1. **Principles of Botany I.** This course aims to present in a broad laboratory course the fundamental principles of Botany. The higher plants are first traced in their development from the seed to flower, special effort being made to correlate the study of morphology, histology, and physiology of the various parts. The morphology, evolution, and classification of plants will then be traced from lower to higher forms. Finally, the relation of plants to their environment and their use in nature and to man will be studied. Throughout the course the economic relations of botanical study will be emphasized. The work will be adapted in the several sections to meet the needs of the several groups of students.

The courses in Agriculture, Forestry, Pharmacy, and Domestic Science and Art; freshman year; first semester; three credits; one recitation; two laboratory periods. Rec., 8-9, W.; 9-10, W.; 10-11, W.; 3-4, M., Lab. 8-10, M. Tu.; 8-10, Th. F.; 10-12, M. F.; 10-12 T. T.; 2-4, W. F.

2. **Principles of Botany II.** A continuation of Botany 1.

The courses in Agriculture, Forestry, Pharmacy, Domestic Science and Art; freshman year; second semester; three credits; one recitation; two laboratory periods. Rec. 8-9, M.; 9-10, M.; 10-11, W.; 3-4, M. Lab., 8-10, T. T.; 8-10, W. F.; 10-12, T. T.; 10-12, M. F.; 2-4, W. F.—Mr. Lawrence, Mr. . . . .

NOTE—Botany 1 and 2 are required as a prerequisite for all the following courses.

3. **Plant Histology.** This is a course dealing with the microscopic structure of plants. A study of the cell, cell contents, and the types of tissues will be made. Students will become familiar with the technique of preparing permanent microscopic slides free hand, and with the aid of the microtome.

The courses in Forestry and Pharmacy; sophomore year; first semester; three credits; one recitation; two laboratory periods. Rec., 4-5, W. Lab., 10-12, W. F.—Mr. Lawrence.

4. **Morphology and Taxonomy of Seed Plants.** Designed to meet the needs of a study of Special Morphology and Taxonomy of Seed Plants by Pharmacy and Forestry students.

The courses in Forestry and Pharmacy; sophomore year; second semester; three credits; one recitation; two laboratory periods. Rec., 4-5, F. Lab., 10-12, W. F.—Mr. Lawrence.

5. **Agricultural Botany.** This course presents to Agricultural students the fundamental botanical principles underlying Agricultural Practice and serves as an introduction to advanced work in Plant Physiology, Plant Breeding, Systematic Pomology and Olericulture, Agrostology, etc. The laboratory work will consist largely of a morphological and taxonomic study of agricultural plants.

The course in Agriculture; sophomore year; second semester; three credits; one recitation; two laboratory periods. Sec. 1: Rec. 2-3, Th., Lab. 10-12, T. T.; Sec. 2: Rec. 2-3, Tu. Lab., 10-12, M. W.—Mr. Lawrence.

6. **Plant Physiology I.** An advanced course in Experimental Plant Physiology. The student is taught by lectures and actual experiments the physiology of crop production. The discussion and experiments cover such topics as absorption, photosynthesis, digestion, respiration, translocation, growth, reproduction, irritability, etc.

Designed to meet the needs of students in Agriculture and Forestry; elective; junior or senior year; first semester; three credits; one recitation; two laboratory periods. Rec., 2-3, M. Lab., 2-4, T. T.—Mr. Lawrence.

7. **Plant Physiology II.** A continuation of course 6.

Elective; junior or senior year; second semester; three credits; one recitation; two laboratory periods. Rec., 4-5, Tu. Lab., 2-4, T. T.—Mr. Lawrence.

8. **Principles of Plant Pathology.** The following are some of the topics to which attention is given in this course, the

causes of diseases in plants; the principles of plant disease control; fungicides and their use; dissemination and geographical distribution of plant diseases; their economic importance; disease resistance; methods of culture of parasitic fungi and bacteria, etc. In the laboratory, opportunity will be given for the study of plant diseases producing organisms and their botanical relationship, methods of inoculation, etc.

Elective in the course in Forestry; junior year; in the course in Agriculture; junior or senior year; first semester; three credits; one recitation; two laboratory periods. Rec., 11-12, M. Lab., 10-12, Th. F.—Professor Jackson.

NOTE—Preparatory for, and required as a prerequisite to, Botany 9, 10, 11.

9. **Diseases of Tree and Small Fruits.** A detailed study will be made of the cause and control of all the important fungous, bacterial and physiological diseases. Particular attention will be given to the diseases of those trees and small fruit crops of importance in the Northwest. The laboratory work will include a careful study of the gross appearance and the effect on the host of various diseases as well as a microscopic study of the organisms causing the trouble and their relation to the tissues of the host.

Designed primarily for students specializing in Horticulture.

Elective; junior or senior year; second semester; three credits; two lectures; one laboratory period. Rec., 2-3, M. W. Lab., 2-4, F.—Professor Jackson.

10. **Diseases of Vegetable and Field Crops.** This course is similar in general to Botany 9, but deals with diseases of vegetable and field crops.

Elective; junior or senior year; second semester; three credits; two lectures; one laboratory period. Hours to be arranged.

11. **Diseases of Forest and Shade Trees.** A study of the diseases of forest and shade trees and of the decay of structural timber is taken up in this course. Designed to meet the needs of students in Forestry and Landscape Gardening.

Elective in the course in Forestry; junior year; in the course in Agriculture; junior or senior year; second semester; three credits; two lectures; one laboratory period. Rec., 8-9, W.; 3-4, M. Lab., 8-10, M.—Professor Jackson.

12. **Taxonomic Study of Farm Weeds and Grasses.** This

course aims to familiarize the students with the structure and classification of farm weeds and grasses. A detailed study will be made of well-selected types. The student will make a collection and identify as many specimens as time will permit.

Elective; junior or senior year; second semester; two credits; two laboratory periods. Hours to be arranged.

13. **Seminar I.** Required of all major or graduate students in Botany and Plant Pathology. The work will consist of reports on advanced studies and abstracts of articles appearing in Experiment Station literature, scientific journals, or the agricultural press.

First semester; one credit will be allowed students who attend meetings regularly and who make satisfactory reports. Hours to be arranged.

14. **Seminar II.** A continuation of course 13.

Second semester; one credit. Hours to be arranged.

15. **Research and Thesis.** Opportunity will be given students who desire to specialize in Botany and Plant Pathology to take up the work not given in the regular courses, or to take up the investigation of special problems.

Senior year; first and second semesters; one to five credits. At least three credits will be required in the senior year of all major students in Plant Pathology.

16. **Phytopathological Technique.** A course in methods of investigations in Plant Pathology which includes methods of keeping records; care of collections; culture work; inoculation; infection; and photography.

Required of students specializing in Plant Pathology. Junior year; second semester; three credits; one lecture; two laboratory periods. Hours to be arranged.

17. **Phytopathological Histology.** In this course a study will be made of histological modifications of plant tissues resulting from disease.

Required of all students specializing in Plant Pathology; senior year; second semester; three credits; one lecture; two laboratory periods. Hours to be arranged.

18. **Advanced Taxonomy of Parasitic Fungi.** More advanced work on the Taxonomy and Phylogeny of plant disease producing organisms will be taken up in this course than is given in Botany 8. Practice in the identification of un-

ɔwn forms will be given. A collection properly prepared for herbarium will be required.

Required of students specializing in Plant Pathology; senior r; first semester; three credits; three laboratory periods. urs to be arranged.

Note.—Any of the courses outlined above except A, B, C, 1, l 2, may be taken as a minor elective by junior or senior dents in any course upon consultation with the head of the artment, provided the course to be elected is not regularly uired in the course of study in which the student is regised.

Opportunity will be given students to elect work in Botany Plant Pathology not offered in the above mentioned courses registering in Botany 15, either as a major or minor subt. Students who elect Botany as a major study must have npleted the work required in the freshman and sophomore rk of th Agricultural courses or their equivalent.

BACTERIOLOGY.

Professor Peterson.
Mr. ————
Mr. Copson.

The work in the Department of Bacteriology is along th lines: 1st, general courses covering the fundamentals of b terial activity; 2nd, special courses making application of t knowledge of bacteriology to agriculture, dairying, domes science, veterinary science, and pharmacy; 3rd, original inv tigations.

1. **Elementary Bacteriology.** Consists of a series of l tures and laboratory demonstrations to familiarize the stude with the underlying principles of bacteriology as applied every-day life.

The course in Agriculture; sophomore year; first semeste one credit; one recitation. Rec. 4-5, Th.—Professor Peterso

2. **General Bacteriology.** Beginning with the first sem ter of the junior year, a student may take bacteriology throu the two semesters of that year, then continue advanced wo through the two semesters of the senior year.

Elective; junior year; first semester; five credits; lectur and laboratory work.—Professor Peterson and Mr. Copson.

3. **Advanced Bacteriology.** A continuation of course the laboratory work familiarizing the student with special ba teriological apparatus and its use, then gradually proceedi into advanced work involving questions of pure science well as the application of bacteriology to the professions a industries.

Elective; junior year; second semester; five credits; labor tory work and lectures.—Professor Peterson and Mr. ......

4. **Introductory Bacteriology.** This is the regular, requir course in Bacteriology for Pharmacy students, fitting them carry on any ordinary bacteriological work. The course is series of recitations and lectures covering the subject in a the retical way.

The course in Pharmacy; senior year; first semester; thr credits; three recitations. Rec. 10-11, M. W. F.—Profess Peterson.

5. **Pathological Bacteriology.** This course is a continuation of introductory bacteriology. It is a course in practical laboratory work in making culture media, plate cultures, a study of colonies, planting on various media, quantitative analysis, classification, examination of pathogenic bacteria, and bacteriological diagnoses.

The course in Pharmacy; senior year; second semester; three credits; one recitation; two laboratory periods. Rec., 10-11, M., Lab. 10-12, W. F.—Professor Peterson and Mr. ————

6. **Household Bacteriology I.** This course deals with the sanitation of the home, water supply, sewers and drains, ventilation and hygiene of the sick room.

Course in Domestic Science and Art; senior year; first semester; two credits; two recitations. Rec. 2-3, T. T.—Professor Peterson.

7. **Household Bacteriology II.** This course is a study of bacteria, molds and yeasts in the home, fermentation, principles of canning, care of milk and food, utilization of waste products, vinegar making, and the preservation of meats.

The course in Domestic Science and Art; senior year; second semester; two credits; two laboratory periods. Lab. 2-4, W. F.—Professor Peterson.

8. **Dairy Bacteriology.** This is the study of bacteria in their relation to milk and milk products. The course considers the source of invasion, reaction upon milk, control of growth, usefulness of certain varieties, and milk inspection.

Elective; senior year; first semester; two credits; two recitations. Rec. 9-10, T. T.—Mr. Copson.

9. **Economic Bacteriology.** This course treats of the economic use of pure cultures of micro-organisms in buttermaking; methods of perpetuating pure cultures for starters; controlling flavor of cheese by the use of pure cultures of selected organisms; enzymes in curing cheese; preserving cheese and butter; laboratory demonstrations in detecting pathogenic bacteria in milk, impure milk, and milk from diseased cows.

Elective; senior year; second semester; two credits; two laboratory periods. Lab. 8-10, T. T.—Professor Peterson and Mr. ————

10. **Soil Bacteriology.** A course of lectures and recitations

in the subject relating to micro-organisms of the soil; nitrif ing germs, bacteria of the legumes, how cultivated and used innoculating; care of the organisms in the soil; value of orga isms in manure.

Elective; senior year; first semester; two credits; two re tations. Rec. 8-9, M. W.—Professor Peterson and Mr. Copso

11. **Technical Bacteriology.** A course of lectures and la oratory work in pathogenic germ diseases of live stock a poultry. Topics for consideration are a study of vaccine their manufacture and use; nitrifying bacteria of legumino plants; bacteria in the soil; bacteriological analysis of water.

Elective; senior year; first semester; five credits; one re tation; four laboratory periods. Hours to be arranged.

12. **Advanced Applied Bacteriology.** This course includ advanced work along the lines of original investigation; pat ological bacteriology; experimental bacteriology; sanitatio immunity and prevention of disease; use and application antiseptics; practical disinfection.

Elective; senior year; second semester; one recitation; fo laboratory periods. Hours to be arranged.

13. A two hour lecture course is given during the seco semester for juniors and seniors, in any of the College cours who have been unable to take the first term lecture wor Hours to be arranged.—Professor Peterson.

14. **Research in Bacteriology.** A thesis may be selected this subject, beginning with the first semester, junior ye major bacteriology, and continuing through four semeste The laboratory is especially equipped for work in agricultu bacteriology. However, ample facilities exist for research al veterinary, or pharmaceutical bacteriology. The investigati are all outlined and conducted by the student in co-operat with the head of the department.

Elective; junior and senior year. Time and credits are be arranged.—Professor Peterson.

CHEMISTRY.

Professor Fulton.
Assistant Professor Daughters.
Mr. Harding.
Mr. Brodie.
Mr. Rowland.

The beginners' courses, Chemistry 1, 2, and 3, consist essen-
ally of the proof of some of the well known chemical laws,
ch as the law of conservation of matter, the law of definite
oportions and of multiple proportions, the Law of Boyle,
d the Law of Charles. The student attains skill in the
anipulation of apparatus, and in the management of equip-
ent in general. From this elementary work he proceeds to
alitative analysis, in the study of which he is taught to
parate and identify the different elements composing the
ass, and, in the case of metals, to learn of their properties,
eir uses, the different methods of obtaining them from their
es, and the combinations in which they occur in nature.

If he has shown suitable proficiency, he advances to quanti-
tive analysis, which is the determination of the amounts
the ingredients. He is taught both methods of analysis,
lumetric, or the method by solution, and the gravimetric, or
e method by precipitation and weighing. On completing these
urses, the student is fairly well prepared to take up advanced
ork in any particular line. He can proceed in Agricultural
emistry, which treats of the analysis of soils, manures, cattle
ods, dairy products, etc., or he can take up the subject from
e inorganic side in the analysis of minerals, fuels, oils, gas,
c., or he can view it from the pharmacist's standpoint, in an-
yzing drugs. And, finally, as a graduate student, he may pro-
ed intelligently along original lines of study and research.

1. **General Chemistry I.** This course deals with the gen-
al principles of the science and extends through the divisions
own as the non-metals.

All degree courses except Domestic Science and Art; fresh-
an year; first semester; four credits; two recitations; two
boratory periods. Rec. 8-9, T. T.; 9-10, T. T.; 10-11, W. F.;

11-12, M. W.; 11-12, W. F., Lab. 2-4, T. T.; 2-4, M. W.; 10-12, T. T.—Professor Fulton, Mr. Harding.

2. **General Chemistry II.** Descriptive. This is a continuation of course 1.

All degree courses except Domestic Science and Art; freshman year; second semester; four credits; two recitations; two laboratory periods. Rec. 9-10, T. T.; 8-9, Tu. W.; 10-11, W. F.; 11-12, M. W.; 11-12, T. T.; 8-9, T. T., Lab. 2-4, T. T.; 10-12, T. T.; 2-4, M. W.—Professor Fulton, Mr. Harding, Mr. Brodie.

3. **General Chemistry III.** This course is arranged especially for the students of the department of Domestic Science and Art.

Freshman year; first semester; four credits; two recitations; two laboratory periods. Rec. 2-3, M.; 4-5, Th., Lab. 2-4, W. F.; 2-4, T. T.—Assistant Professor Daughters.

4. **Elementary Organic Chemistry.** This is a brief course in Organic Chemistry, and is provided for the students of the department of Domestic Science and Art.

Freshman year; second semester; four credits; two recitations; two laboratory periods. Rec. 2-3, M.; 3-4, M.; 9-10, Tu.; 9-10, Th., Lab. 2-4, T. T.; 2-4, W. F.—Assistant Professor Daughters.

5. **Qualitative Analysis I.** This course consists largely of laboratory practice in the ordinary processes of separating and identifying ions.

The course in Pharmacy; sophomore year; first semester; four credits; one recitation; three laboratory periods. Rec. 4-5, F., Lab. 10-12, M. T. T.—Mr. Brodie.

6. **Qualitative Analysis II.** A course provided for mining students.

Sophomore year; first semester; three credits; three laboratory periods. 8-10, M. W. Th.—Assistant Professor Daughters.

7. **Quantitative Analysis I.** This is a course designed for students in Pharmacy, and consists of instruction in both gravimetric and volumetric analysis of pharmaceutical products.

Junior year; first semester; three credits; one recitation; two laboratory periods. Rec. 3-4, F., Lab. 8-10, M. F.—Mr. Harding.

8. **Quantitative Analysis II.** This is a course in analysis for Mining students, and consists of gravimetric analysis of

stones, iron, lead, zinc, arsenic and antimony ores, coal, as much of other work as time will permit.

phomore year; second semester; three credits; three laboratory periods. 8-10, M. W. F.—Mr. Brodie.

Organic Chemistry. This course consists of the study of more typical and simple organic compounds and is deed for Pharmacy, and such students of Agriculture as de- to take up Physiological Chemistry, and Veterinary nce.

phomore year; second semester; four credits; two recitas; two laboratory periods. Rec. 10-11, M.; 4-5, W., Lab. 2, T. T.—Assistant Professor Daughters.

Agricultural Chemistry I. A course consisting of lecs, recitations, and laboratory work, dealing with the more rtant phases of Chemistry as related to Agriculture.

e course in Agriculture; sophomore year; first semester; and one-half credits; one recitation; one and one-half labry periods. Rec. 10-11, F.; 11-12, F., Lab. 2-5, Tu.; 2-5, –Professor Fulton.

Agricultural Chemistry II. A continuation of course

e course in Agriculture; sophomore year; second semester; and one-half credits; one recitation; one and one-half labry periods. Rec. 10-11, F.; 11-12, F., Lab. 2-5, Tu.; 2-5, –Professor Fulton.

Pharmaceutical Analysis. This is an extension of titative Analysis I, and consists of the chemical examinaof alkaloidal drugs and galenicals, and of the examination ine.

e course in Pharmacy; junior year; three credits; one recin; two laboratory periods. Rec. 3-4, F., Lab. 8-10, M. F.

Dairy Chemistry I. This consists in the study of the istry of milk and its products and includes both quali- and quantitative determination of adulterants and pretives.

e course in Dairy Husbandry; junior year; second semesthree credits; three laboratory periods. Hours to be ared.

requisites: Chemistry 9 and 10.

Chemistry of Foods. An advanced course for the stu- of the School of Domestic Science and Art, consisting of practice in the best methods as applied in food analysis, a in detection of common adulterants. Opportunities for search work will be given if desired.

The course in Domestic Science and Art; sophomore ye first semester; four credits; two recitations; two laborat periods. Rec. 9-10, F.; 4-5, M., Lab. 10-12, M. W.; Rec. 3 M.; 4-5, W., Lab. 10-12, T. T.—**Assistant Professor Daught**

15. **Chemistry for Engineers.** This course is particula for students in Mechanical and Electrical Engineering. consists of the analysis of coal, oil, gas, and of their calor powers; also the technical analysis of flue gases.

Elective; junior or senior year; second semester; two credi two laboratory periods.

16. **Electro-Chemistry.** This is a course for advanced M ing students, and consists of the application of the elect current to solutions of the different metals in metallurgi analysis.

Elective; junior or senior year; first semester; two credi two laboratory periods.

17. **Chemistry of Commerce.** A practical study of chemical processes involved in the production of various c modities, including iron, steel, copper, and other metals; soa dyes, paints, and the like. The course is intended to famil ize the student with the application of chemistry to mod industries.

Elective; course in Commerce; junior or senior year; eit semester; three credits; three recitations.

18. **Mineral Analysis.** This course may be taken by one desiring advanced work in Quantitative Analysis. It c sists of the theoretical and practical study of the most appro methods of determining the composition of complex compou Hours to be arranged.

Elective; junior or senior year; either semester; four c its; one recitation; three laboratory periods.

19. **Soil Chemistry I.** This is a lecture and laborat course on the methods of soil analysis, as used by the differ experiment stations.

Junior year; first semester; four credits; four laborat periods.

Prerequisites: Chemistry 9 and 10.

20. **Soil Chemistry II.** A continuation of course 19.

Junior year; second semester; four credits; four laboratory periods.

21. **Agricultural Analysis I.** A course in analytical methods applied to agricultural materials including cereals, fertilizers, soil, waters, etc.

Junior year; first semester; four credits; four laboratory periods.

Prerequisites: Chemistry 9 and 10.

22. **Agricultural Analysis II.** A continuation of course 21, extending through the second semester. Same credits and requirements.

23. **Advanced Agricultural Analysis I.** This course is essentially Thesis work in the Experiment Station laboratory, or work of the same general description.

Senior year; first semester; four credits; four laboratory periods. Hours to be arranged.

24. **Advanced Agricultural Analysis II.** A continuation of course 23.

Senior year; second semester; four credits; four laboratory periods. Hours to be arranged.

PHYSICS.

Professor Weniger.
Mr. Shepard.
Mr. ——————.

A. **Elementary Physics I.** A high school course in Physics adapted to students just beginning geometry.

The Secondary course in Mechanic Arts; second year; first semester; four credits; three recitations; one laboratory period. Rec. 9-10, T. T. F., Lab. 8-10, M.—Mr. Shepard.

B. **Elementary Physics II.** A contiuation of course A.

Second semester; four credits; three recitations; one laboratory period. Rec. 9-10, T. T. F., Lab. 8-10, M.—Mr. Shepard.

1. **General Physics I.** A course in general physics, descriptive rather than mathematical in character, adapted especially to students of Agriculture. A good working knowledge of geometry is the only prerequisite.

The course in Agriculture; sophomore year; first semester; three and one-half credits; two lectures; one recitation; one laboratory period. Lec. 8-9, T. T., Rec. 10-11, F.; 11-12, F:, Lab. 2-4, M.; 2-4, W.—Dr. Weniger and Mr. ————.

2. **General Physics II.** A continuation of course 1.

The course in Agriculture; sophomore year; second semester; three and one-half credits; two lectures; one recitation; one laboratory period. Lec. 8-9, T. T., Rec. 10-11, F.; 11-12, F., Lab. 2-4, M.; 2-4, W.—Dr. Weniger and Mr. ————.

3. **General Physics III.** This course is similar in many respects to course 1, but is more technical in its nature, being designed particularly for Engineering students. A working knowledge of trigonometry is required for entrance.

The course in Forestry; all courses in Engineering; sophomore year; first semester; five credits; two lectures; two recitations; one laboratory period. Lec. 11-12, T. T., Rec. E. E. 8-9, W. F.; M. E. and Min. E., 9-10, T .T.; For. and C. E., 10-11, T. T., Lab., E. E., 8-10, M.; M. E., 8-10, F.; Min. E., 2-4, W., C. E. and For., 10-12, M.—Dr. Weniger and Mr. Shepard.

4. **General Physics IV.** A continuation of course 3.

The course in Forestry; all courses in Engineering; sophomore year; second semester; five credits; two lectures; two recitations; one laboratory period. Lec. 11-12, T. T.; Rec. E. E., 8-9, W. F.; M. E. and Min. E., 9-10, T. T. ; For. and C. E., 10-11, T. T., Lab. E. E., 8-10, M.; M. E., 8-10, F.; Min. E., 2-4, W.; C. E. and For. 10-12, M.—Dr. Weniger and Mr. Shepard.

5. **General Physics V.** The lectures and recitations in this course are identical with those of course 1, but more laboratory work is required.

The course in Commerce; sophomore year; first semester; the course in Pharmacy; junior year; first semester; four credits; two lectures; one recitation; one laboratory period. Lec. 8-9, T. T.; Rec. 10-11, M.; Lab. 8-10 W.—Dr. Weniger, Mr. Shepard and Mr. ————.

6. **General Physics VI.** A continuation of course 5.

The course in Commerce; sophomore year; second semester; the course in Pharmacy; junior year; second semester; four credits; two lectures; one recitation; one laboratory period. Lec. 8-9, T. T.; Rec. 10-11, M.; Lab. 8-10, W.—Dr. Weniger, Mr. Shepard and Mr. ————.

7. **General Physics VII.** A brief descriptive course with such applications as are of greatest interest to students in Domestic Science and Art.

The course in Domestic Science and Art; junior year; first semester; three credits; two recitations; one laboratory period. Rec. 8-9, T. T.., Lab. 10-12, F.—Mr. Shepard.

8. **General Physics VIII.** A continuation of course 7.

The course in Domestic Science and Art; junior year; second semester; three credits; two recitations; one laboratory period. Rec. 8-9, T. T., Lab. 2-4, Th.

9. **Electrical and Magnetic Measurements.** A laboratory course in the exact determination of electrical and magnetic quantities, calibration of instruments, etc.

The course in Electrical Engineering; junior year; first semester; two credits. Laboratory open Tuesday and Thursday and perhaps Friday afternoons, depending on number of students.—Dr. Weniger.

This course will be repeated during the second semester as an elective, should a sufficient number of students apply.

10. **Heat and Light.** An advanced course, taking up the phenomena of heat and light in detail, including recent discoveries.

Elective; credit to depend upon work done.—Dr. Weniger.

11. **Electricity and Magnetism.** An advanced course, taking up the theory of electrical measuring instruments, etc., with suitable practice in the laboratory.

Elective; credit to depend upon work done.—Dr. Weniger.

MATHEMATICS.

Professor Johnson.
Assistant Professor Tartar.
Mr. Beard.
Mr. Beaty.
Miss Campbell.

A. **Algebra I.** The work of the course includes a drill in the fundamental operations, use of parentheses, special rules of multiplication and division, factoring, highest common factor, lowest common multiple, and fractions.

The Secondary courses; first year; first semester; five credits; five recitations. Rec. 8-11, daily; 2-4, daily.—Miss Campbell and Assistant Professor Tartar.

B. **Algebra II.** The topics studied are solution of fractional and literal equations, problems involving linear equations, simultaneous linear equations involving two or more unknown numbers, problems involving simultaneous linear equations, graphical representation, inequalities, involution, evolution, theory of exponents, radical expression, and imaginary numbers.

The Secondary courses; first year; second semester; five credits; five recitations. Rec. 8-11, daily.; 2-4, daily.—Miss Campbell and Assistant Professor Tartar.

C. . . **Algebra III.** After a short review of the topics which precede quadratic equations, the following subjects are carefully treated: Quadratic equations, problems involving quadratic equations with one unknown number, equations in the quadratic form, theory of quadratic equations, factoring of quadratic expressions, solution of quadratic equations by factoring, graphical representation of quadratic expressions with one unknown number, simultaneous quadratic equations, problems involving simultaneous quadratic equations with two unknown numbers, and graphical representation of simultaneous quadratic equations.

The Secondary courses; second year; first semester; two and one-half credits; alternates with course D. Rec. 8-12, M. W. F.; 8-11, T. T. F.—Assistant Professor Tartar and Miss Campbell.

D. **Geometry I.** Courses D and E include all that is found in Shutt's Plane and Solid Geometry. The constant aim is to develop in the student the power of logical reasoning, and of clearness and accuracy of expression. To this end many original exercises are studied, and at all times demonstrations and proofs are freely discussed in the class room.

The Secondary courses; second year; first semester; two and one-half credits; alternates with course C. Rec. 8-11, M. W. F.; 8-11, T. T. F.; 2-3, T. T. F.—Mr. Beard.

E. **Geometry II.** This is a continuation of course D.

The Secondary courses; second year; second semester; five credits; five recitations. Rec. 8-11, daily.—Assistant Professor Tartar and Mr. Beard.

F. **Solid Geometry.** Required of all Engineering freshmen who are deficient in Solid Geometry.

Freshman year; first semester; two credits; two recitations. Rec. 4-5, M. W.—Mr. Beard.

1. **Plane Trigonometry I.** This course includes functions of acute angles, right triangles, functions of any angle, relations between functions, inverse functions, trigonometric equations, and oblique triangles. Considerable time is devoted to the deduction of trigonometric formulae, study of trigonometric identities, and the solution of practical problems.

All Engineering courses; freshman year; first three-fifths first semester; three credits; five recitations. Rec. 8-12, daily.—Mr. Beaty.

2. **Plane Trigonometry II.** This course is arranged especially for students in Agriculture and Commerce.

Freshman year; Agriculture; first semester; three credits; three recitations. Rec. 11-12, T. T. F.; 2-3, T. T. F. Commerce; second semester; three credits; three recitations. Rec. 11-12, M. W. F.—Assistant Professor Tartar and Mr. Beaty.

3. **Spherical Trigonometry.** The course in Civil Engineering; freshman year; last half of first semester; one credit; two recitations. Rec. 11-12, W. F.—Mr. Gould.

4. **College Algebra.** After a brief review of radical expressions, theory of indices, and quadratic equations, graphical representation and mathematical induction are studied.

All Engineering courses; freshman year; last two-fifths of first semester; two credits; five recitations. Rec. 8-12, daily. —Mr. Beaty.

5. **Elementary Analysis.** Under College Algebra are treated e binomial theorem, progressions, complex numbers, and the eory of equations. In analytical geometry the point, straight ıe, circle, conic sections, and some of the higher plane curves e studied. Considerable time is given to the plotting of rves in both rectangular and polar co-ordinates.

All Engineering courses; freshman year; second semester; e credits; five recitations. Rec. 8-12, daily. Mr. Beaty.

6. **Plane Analytic Geometry.** The topics studied are the int, the straight line, polar co-ordinates, transformation of -ordinates, the circle, conic sections, tangents, discussion of neral equations of the second degree, problems in loci, and gher plane curves.

All Engineering courses; sophomore year; first three-fifths first semester; three credits; five recitations. Rec. 8-11, ily.—Professor Johnson.

7. **Calculus I.** The fundamental principles of the differtial calculus are developed and applied with special referce to the needs of Engineering students.

All Engineering courses; sophomore year; last two-fifths of st semester; two credits; five recitations. Rec. 8-11, daily. Professor Johnson.

8. **Calculus II.** Among the subjects presented are: evaltion of indeterminate forms, maxima and minima, change independent variable, direct integration, definite integrals d applications; integration by parts, integration of trigometric forms, etc.; applications to finding the lengths and eas of curves, surfaces, and volumes of solids of revolution, .; double and triple integration and application. In this urse, as in course 7, great stress is laid upon practical apcations, and a large number of practical problems are solved.

All Engineering courses; sophomore year; second semester; e credits; five recitations. Rec. 8-11, daily.—Professor hnson.

ENGLISH LANGUAGE AND LITERATURE.

Professor Berchtold.
Assistant Professor Ida B. Callahan.
Mr. Baldwin.
Anna Zou Crayne.
Winifred Williams.
Gertrude E. McElfresh.

The objective points toward which all efforts in the study of English tend are: The study of English as a means of communication between man and man; the study of English as literature; and the study of English as language.

A cursory glance at this division might suggest the first part as the all important point, i. e., the study of English in its full scope as a means of expression with the pen and lips. Experience has taught, however, that students of English who wish to become well grounded in the knowledge and use of their mother tongue can not safely neglect any one of these points. For he who studies the art of composition will be greatly helped in his work, if he knows the exact meaning of the words and is familiar with the classics of his native tongue.

Knowledge of the principles of the art of composition as applied by the best writers will assist the student to avoid his own crudities, and will enable him to communicate what he has to say in a better form than he would otherwise employ. By the shortcomings of others he should learn what to guard against and by their achievements what to seek in his own compositions, be these simple daily or weekly letters to friends or parents, or be they themes, essays, orations, dissertations or contributions to current thought.

What his text-book helps him to do consciously, familiarity with superior writers should help him to unconsciously; for we may get good from a master of English by unconscious absorption, just as we acquire good manners by associating with gentlemen and ladies. No mind can fail to be stimulated by contact with greater minds, whether living or dead. Their pages feed the powers of thought and strengthen the power of expression, thus enabling the student to think, to talk, and to write to more purpose.

The college graduate of today, when taking his place in the arena of the world, is expected to have, and usually has, thoughts and opinions of his own. To render these ideas of use to his fellow men, and thus to himself, he must be able to give them adequate expression. This the study of Grammar, Rhetoric, and Literature will help him to do, as all these branches call for close and accurate observation, correct inference, and sharp discrimination.

A. **Advanced Grammar.** This course is designed to make the expression of ideas a pleasure to the student. It is not confined to the mere memorizing inflections and the formulation of rules. The work consists of both oral and written work with Baskervill and Sewell's English Grammar as a basis. Written exercises prepared under rules of form are required constantly to obtain flexibility and confidence in expression. There is daily drill in analysis and synthesis of sentences. Punctuation and capitalization form a part of the daily drill work. Special emphasis is laid upon spelling. Practice in the correction of written work is given to enable the student to detect his own mistakes readily. Elementary themes, one, two, and three paragraphs in length, written according to the narrative and expository methods, the subjects being chosen from the student's experience, and from classic readings. Ten short themes, with conferences for criticism, will be required.

The Secondary courses; first year; first semester; four credits; four recitations. Rec. 8-11, T. W. T. F.; 2-3, T. W. T. F.; 4-5, T. W. T. F.—Mrs. McElfresh.

B. **Composition.** The aim of this course is to ground students thoroughly in the elements and fundamentals of composition. Capitalization and punctuation reviewed; the importance of letter writing emphasized; principles governing sentence structure, paragraph structure, and theme structure studied, with certain classical models always in the foreground; in short, to develop power of expression and individuality as spontaneously and naturally as possible. At least twelve short themes and one long theme, with conferences for criticism to illustrate the forms of composition. To be taken in connection with English D, and supplemented by it.

The Secondary courses; first year; second semester; two credits; two recitations. Rec. 8-11, T. T.; 2-3, T. T.; 4-5, T. T.—Mrs. McElfresh.

C. **Classics I.** The aim of this elementary course is to cultivate in the student a taste for reading; to assist him in the interpretation of the simpler classics of our literature; and to encourage him to express his own thoughts clearly and without embarrassment. Masterpieces of prose and poetry are studied and some collateral reading is required.

The Secondary courses; first year; first semester; one credit; one recitation. Rec. 8-11, M.; 2-3, M.; 4-5, M.—Mrs. McElfresh.

Paradise Lost, Books I. and II., Milton.

Snowbound, Whittier.

D. **Classics II.** A continuation of Classics I.

The Secondary courses; first year; second semester; three credits; three recitations. Rec. 8-11, M. W. F.; 2-3, M. W. F.; 4-5, M. W. F.—Mrs. McElfresh.

The Iliad, Lang's Translation.

The Pilgrim's Progress, Part I., Bunyan.

The Merchant of Venice, Shakespeare.

The Vision of Sir Launfal, Lowell.

E. **Rhetoric and Composition I.** Open to students who have had courses A, B, C, D, or their equivalent.

A review of the principles of grammar; exercises in syntactical construction; principles governing the structure of the whole composition; analysis and outlines of specimens of easy classic prose and poetry, with a view to illustrating theme structure; writing of short compositions in class on "read up" matter; and the preparation of twelve short themes and two long themes, in the narrative and descriptive forms, with attention to sentence structure, spelling, punctuation, and paragraph arrangement.

The Secondary courses; second year; first semester; three credits; three recitations. Rec. 8-12, M. W. F.—Mrs. Crayne.

F. **Rhetoric and Composition II.** A continuation of course E. Intensive study of the Paragraph, the Sentence, and the Word; study of synonyms; paragraph writing, with a view to applying the principles governing the development of the topic statement; at least ten short themes, occurring weekly, and three long themes, in the expository and argumentative forms.

The Secondary courses; second year; second semester; three credits; three recitations. Rec. 8-12, M. W. F.—Mrs. Crayne.

G. **Classics III.** Principles of literary criticism; interpretative study of classics; analysis and rendering. George Eliot's Silas Marner, Irving's Sketch Book, Scott's Lady of the Lake, or Macaulay's Lays of Ancient Rome, constitute the list of classics from which selections for study will be made.

All Secondary courses; first semester; two credits; two recitations. Rec. 8-12, T. T.—Miss Williams.

H. **Classics IV.** Continuation of the methods of work employed in the first semester. A selection of three classics will be made for study from a list consisting of Shakespeare's As You Like It, Addison's De Coverley Papers, Stevenson's An Inland Voyage.

All Secondary courses; second semester; two credits; two recitations. Rec. 8-12, T. T.—Miss Williams.

1. **Rhetoric.** Study of the elements and principles involved in effective discourse. The study of the paragraph; the sentence; the word; expository and argumentative forms of composition, with written exercises in each. Careful attention to making plans and outlines. Compositions of the expository and argumentative order written on demand in class, under limit. Personal conferences with the instructor on all written work are an important part of the course. Twelve short themes and at least two long themes.

All degree courses; freshman year; first semester; three credits; three recitations. Rec. 8-12, M. W. F.—Assistant Professor Callahan and Mr. Baldwin.

Prerequisites: English A, B, C, D, E, F, G, H.

2. **Advanced Rhetoric.** Study and practice in narrative and descriptive writing in class; drill in careful, orderly arrangement of material; outlines of plans, introductions, conclusions; study of effective paragraphing in the narrative and descriptive types; importance of color and action; twelve short themes and at least two long themes, with personal conferences.

All degree courses; freshman year; second semester; three credits; three recitations. Rec.8-12, M. W. F.—Assistant Professor Callahan and Mr. Baldwin.

Prerequisites: English 1 and 3.

3. **Advanced Classics and Reading I.** Principles of literary criticism; advanced interpretative study of literary classics; analysis and rendering.

All degree courses; freshman year; first semester; two credits; two recitations. Rec. 8-12, T. T.

Macaulay's Essay on Johnson, Lamb's Essays of Elia, Carlyle's Essay on Burns, Macaulay's Essay on Addison, Burke's Speech on Conciliation.—Assistant Professor Callahan and Mr. Baldwin.

4. **Advanced Classics and Reading II.** A continuation of course 3.

All degree courses; freshman year; second semester; two credits; two recitations. Rec. 8-12, T. T.

Macbeth, Lear, Hamlet, Hawthorne's House of Seven Gables, Milton's Minor Poems.—Assistant Professor Callahan and Mr. Baldwin.

5. **The Essay.** This is perhaps the most instructive, helpful, and profitable of the forms of discourse. A careful study of the works of the masters of this difficult form: Emerson, Lowell, Stedman, DeQuincey, Macaulay, Matthew Arnold, and Ruskin; study of the paragraph; frequent written exercises on subjects discussed in the essays.

The course in Domestic Science and Art; sophomore year; first semester; three credits; three recitations. Rec. 8-9, M. W. F.—Professor Berchtold.

6. **The English Drama.** A course devoted chiefly to the study of Shakespeare. Rapid survey of the rise and development of the English Drama, by lectures and reports, followed by the careful reading of three or four of Shakespeare's plays. Analysis of setting, plot, structure and characters. Reports on assigned readings. Reviews.

The course in Domestic Science and Art; sophomore year; second semester; three credits; three recitations. Rec. 8-9, M. W. F.—Professor Berchtold.

7. **English Literature I.** A general outline course based upon Long's History of English Literature. This includes a survey of the principal forms of literature as exemplified by the masters in each field. The aim is to cultivate an appreciation of what is excellent in quality and form. Masterpieces representing the best thought and form are studied in class or assigned to students for careful reading and reports. Chief attention given to Chaucer, Shakespeare, Milton, Dryden, Pope, Johnson, and Goldsmith.

The course in Domestic Science and Art; junior year; first semester; three credits; three recitations. Rec. 9-10, T. T. F.—Professor Berchtold.

8. **English Literature II.** A continuation of course 7. A study of the writers of the nineteenth century: Scott, Macaulay, Dickens, Thackeray, George Eliot, Matthew Arnold, Carlyle, Ruskin, and others. The required readings are designed to illustrate the different forms and periods of English literature.

The course in Domestic Science and Art; junior year; second semester; three credits; three recitations. Rec. 9-10, T. T. F.—Professor Berchtold.

9. **American Literature I.** A study of the leading periods and principal writers of our country, with particular emphasis on what is sometimes called the First National Period, including such authors as Irving, Cooper, Bryant, Poe, Hawthorne, Longfellow, and Holmes; also prominent writers of the present day; lectures; class room study and reading; compositions.

The courses in Domestic Science and Art, Electrical Engineering, and Pharmacy; elective in the other courses; senior year; first semester; two credits; two recitations. Rec. 9-10, M. W.—Professor Berchtold.

10. **American Literature II.** A continuation of course 9. The metropolitan writers; present schools and tendencies; literature in the West; lectures; class room study and reading; compositions.

The course in Domestic Science and Art, Electrical Engineering, and Pharmacy; elective in the other courses; senior year; second semester; two credits; two recitations. Rec. 9-10, M. W.—Professor Berchtold.

11. **Business English.** Besides giving a thorough training in commercial correspondence, the course aims to ground the students in the vocabulary, forms, and usages peculiar to business and administrative pursuits. Incidental writing, summaries, advertising, preparation of copy and proofreading receive much attention.

The standards of commercial English are each year advancing; and familiarity with proper usage of recognized form is of paramount importance to those who are looking forward to a business career.

The Commercial course; freshman and second Secondary years; first and second semesters respectively; three credits; three recitations. Rec. 11-12, M. W. F.—Mr. Baldwin.

12. **Modern English Prose I.** A study of representative modern prose writers with special reference to prose as found in present day standard periodicals. Study of the newspaper paragraph. Practice in reporting lectures. Exercises in the elaboration of field notes. Drills looking to the popularization of technical matters and the results of experiments. Writing of papers and reports. Theme writing.

Elective in the courses in Agriculture, Forestry, Mechanical and Civil Engineering; sophomore year; first semester; three credits; three recitations. Rec. 9-10, M. T. T.—Assistant Professor Callahan; 11-12, M. W. F.—Professor Berchtold.

13. **Modern English Prose II.** A continuation of course 1.

Elective in the courses in Agriculture, Forestry, Mechanical and Civil Engineering; sophomore year; second semester; three credits; three recitations. Rec. 9-10, M. T. T.—Assistant Professor Callahan; 11-12, M. W. F.—Professor Berchtold.

PUBLIC SPEAKING.

Professor Hetzel.
Mr Batkin.
Miss Williams.
Mr. Griffis.

The course in Public Speaking is intended to serve three purposes: (1) to train students in the use of English as a means for expression and communication for the ordinary demands of social, commercial and professional life; (2) to continue that training to suit the special needs of those who intend to take up lines of activity which necessitates speaking in public; (3) to develop skill in elocution, interpretative reading and dramatic presentation. The work has been prepared to meet the particular needs of the students in the various courses.

The Oregon Agricultural College participates in several intercollegiate oratorical contests and debates. The courses in Public Speaking are designed to give preparation for these contests. Candidates for positions on these teams or those desiring training for the Literary Society contests are advised to consider courses 5, 6, 7, and 8. Students who are interested in dramatic presentation, or who wish to become public readers or teachers, should consider courses 9, 10, 11, and 12.

All students in Agriculture, Engineering, Commerce, and Pharmacy are required to take courses 1, 2, 3, and 4. These courses are made very practical and are designed to teach students how to analyze, organize and present argument in support of propositions of the same nature as those which they expect to meet in their chosen lines of work.

1. **Argumentative Themes.** This course is devoted principally to training in analysis, evidence, and brief-drawing. The work consists of lectures, a study of text-books, and practice in the composition of various forms of argumentative themes.

All Engineering courses and in Pharmacy; sophomore year; first semester; one credit; one recitation. Rec. 8-9, M.; 3-4, Th.; 4-5, Th.; 10-11, Tu.—Professor Hetzel and Mr. Batkin.

In the courses in Agriculture, Commerce, and Forestry; junior year; first semester; one credit; one recitation. Rec.

8-9, W.; 4-5, Th.—Professor Hetzel and Mr. Batkin.

2. **Presentation.** This course deals with the principles of conviction and persuasion, and with the problems of presentation. Students are taught how to recognize and solve problems which arise because of the different interests and characters of individuals and communities.

All Engineering courses and in Pharmacy; sophomore year; second semester; one credit; one recitation. Rec. 4-5, Th.; 8-9, M; 3-4 W.; 10-11. Tu.; 3-4, Th.—Professor Hetzel and Mr. Batkin.

In the courses in Agriculture, Commerce, and Forestry; junior year; second semester; one credit; one recitation. Rec. 10-11, Tu.; 3-4, W.; 3-4, Th.; 4-5, Th.; 8-9, W.—Professor Hetzel and Mr. Batkin.

3. **Composition of Address.** This course deals with the composition of the most important kinds of addresses, including the argument, the eulogy, the commemorative address, and various forms of non-forensics. The work consists of lectures, a study of text-books, analysis of masterpieces, practice in the composition of the various forms and frequent class room exercises.

All Engineering courses; junior year; first semester; two credits; two recitations. Rec. 11-12, T. T.; 8-9, T. T.; 8-9, M. W.—Mr. Batkin.

In the courses in Agriculture, Commerce, Forestry ,and Pharmacy; senior year; first semester; two credits; two recitations. Rec. 9-10, T. T.; 8-9, M. W.—Mr. Batkin.

4. **Extempore Speaking.** Daily practice in the presentation of the various forms of addresses. Speeches are prepared on topics of special and particular interest to the students and delivered with the view to making them most effective as means in the advancement of a particular cause. Extensive criticism is offered as to methods of selection, organization and presentation.

All Engineering courses; junior year; second semester; two credits; two recitations. Rec. 11-12, T. T.; 8-9, T. T.; 8-9, M. W.—Mr. Batkin.

In the courses in Agriculture, Commerce, and Pharmacy; senior year; second semester; two credits; two recitations. Rec. 9-10, T. T.; 8-9, M. W.; 8-9, T. T.—Mr. Batkin.

5. **Practical Public Speaking I.** Practice in the presentation of the various forms of public address, voice training, study of gesture, bearing, and the elements of ease, grace, and force in presentation. Practice in the rapid preparation of

eeches on topics of current interest, and in the impromptu livery of same. Designed for those who wish some general aining in public speaking. Drill in parliamentary procedure.

Elective; first semester; three credits; three recitations. ec. 8-9, F.; 3-4, Tu. W.—Professor Hetzel and Mr. Batkin.

6 **Practical Public Speaking II.** Continuation of course 5.

Elective; second semester; three credits; three recitations. ec. 8-9, F.; 10-11, Th. F.—Professor Hetzel and Mr. Batkin.

7. **Debating.** Practical work in brief-drawing, the col-ction and handling of evidence, and debating. Each student ill prepare several debates under the direction of the instruc-r; construct briefs and participate in class room debates. ersonal consultation with the instructor on thought, compo-tion and delivery. This course is a critical and practical udy of debating. The class is limited in number. The course n be taken only with the consent of the instructor.

Elective; first semester; two credits; two recitations. Hours be arranged.—Mr. Batkin.

8. **Oratory.** This course is intended as special prepara-on for those who wish to enter oratorical work. The work onsists of lectures on the theory of oratory, the preparation original orations, class room exercises and personal confer-ces and criticism. The course can be taken only with the onsent of the instructor.

Elective; first semester; one credit; one recitation. Hours be arranged.—Mr. Batkin.

9. **Elocution I.** Literary interpretation, including analy-s, memorizing, and rendering of selected masterpieces of prose nd poetry. The aim of this course is to enable the student ot only to understand and appreciate the thought and spirit f literature, but to render it naturally and effectively; to orrect erroneous habits of speech and to give freedom, purity, nd strength of tone; to cultivate the power of expression hrough imagination; to eliminate artificiality, affectation and elf-consciousness.

Elective; first semester; two credits; two recitations. Hours be arranged.—Miss Williams.

10. **Elocution II.** Continuation of course 9.

Elective; second semester; two credits; two recitations; ours to be arranged.—Miss Williams.

11. **Elocution III.** Advanced literary interpretation. Train-

ing in the delivery of masterpieces of prose and poetry; repertoire; Bible reading; interpretative study of Shakespear and the Modern Drama; voice culture; bodily expression; impersonation.

Elective; first semester; two credits; two recitations. Hour to be arranged.—Miss Williams.

Prerequisite: Course 8.

12. **Elocution IV.** Continuation of course 11.

Elective; second semester; two credits; two recitations Hours to be arranged.—Miss Williams.

13. **American Journals.** Lectures dealing with the histor and development of American newspapers, scientific and industrial journals; their use, and influence on the political and scientific activities of the times; law of libel and copyright. Class room examination of newspapers, industrial, scientific and critical periodicals. Practical work in writing for journals of the various classes.

Elective; first semester; three hours. Hours to be arranged. —Mr. Griffis.

14. **Industrial Journalism.** Continuation of course 1. Practice in preparation of articles for newspapers, scientific and industrial periodicals. Preparation of scientific bulletins. Writing of political letters and pamphlets. Critical examination of specimens of journalistic production in the fields of politics and science, supplemented by lectures.

Elective; second semester; three hours. Hours to be arranged. Mr. Griffis.

15. **The Science of Editing.** Practice in the reading of proof and the remodeling of material prepared for the press. In this course, the students will work under the direction of the instructor in the preparation of the undergraduate publications and, to some extent, the College publications.

Elective; first semester; two hours. Hours to be arranged. —Mr. Griffis

16. **Advertising.** Lectures on the psychology of successful advertising. Study of the principles of composition in the various forms of advertising. Preparation and distribution. Lectures supplemented by critical examination of advertising in American journals. Practice in the preparation of advertising matter.

Elective; second semester; two hours. Hours to be arranged. —Mr. Griffis.

MODERN LANGUAGE.

Professor Bach.
Miss Kuney.

Courses of three years are offered in French, German and Spanish.

The end in view is practical use in the various pursuits of life. Consequently the method of teaching is thoroughly practical, combining all the theory that is necessary with all the practice that is possible.

1. **French I.** Grammar, Fraser and Squair.

Part I. Elementary forms with oral and written exercises; the more common irregular verbs; reading of 100 to 150 pages of easy prose.

Sophomore year; first semester; three credits; three recitations. Rec. 9-10, M. T. T.--Professor Bach.

2. **French II.** A continuation of course 1.

Sophomore year; second semester; three credits; three recitations. Rec. 9-10, M. T. T.—Professor Bach.

Prerequisite: Course 1.

3. **French III.** Fraser and Squair's Grammar.

Part II. Reading of intermediate texts; conversational exercises; composition.

Junior year; first semester; three credits; three recitations. Hours to be arranged.—Professor Bach.

Prerequisites: Courses 1 and 2.

4. **French IV.** A continuation of course 3.

Junior year; first semester; three credits; three recitations. Hours to be arranged.—Professor Bach.

Prerequisites: Courses 1 and 2.

5. **French V.** Reading of advanced texts as may best suit the needs of the class. All sorts of oral and written exercises on the texts read.

Elective; senior year; first semester; three credits; three recitations. Hours to be arranged.—Professor Bach.

Prerequisites: Courses 1, 2, 3, 4.

6. **French VI.** A continuation of course 5.

Elective; senior year; second semester; three credits; three recitations. Hours to be arranged.—Professor Bach.

Prerequisites: Courses 1, 2, 3, 4, 5.

7. **German I.** Joynes and Wesselhoeft's German Lesson Grammar; elementary forms with oral and written exercises; reading of 50 to 100 pages of easy texts.

Sophomore year; first semester; three credits; three recitations. Rec. 9-10, M. T. T.; 11-12, M. W. F.; 8-9, M. W.; 2-3, Th.—Miss Kuney.

8. **German II.** A continuation of course 7.

Sophomore year; second semester; three credits; three recitations. Rec. 9-10, M. T. T.; 8-9, M. W.; 2-3, Th; 11-12, M. W. F.—Miss Kuney.

Prerequisite: Course 7.

9. **German III.** Joynes and Wesselhoeft's German Lesson Grammar continued; reading of intermediate texts; exercises in conversational German on all sorts of topics; composition.

Junior year; first semester; three credits; three recitations. Rec. 8-9, T. T. F.; 5-6, T. T. F.—Professor Bach.

Prerequisites: Courses 7 and 8.

10. **German IV.** A continuation of course 9.

Junior year; second semester; three credits; three recitations. Rec. 8-9, T. T. F.; 5-6, T. T. F—Professor Bach.

Prerequisites: Courses 7, 8, 9.

11. **German V.** Reading of suitable advanced texts, 300 to 400 pages; oral and written exercises on texts read; conversation.

Senior year; first semester; three credits; three recitations. Rec. 4-5, T. T. F.—Professor Bach.

Prerepuisites: Courses 7, 8, 9, 10.

12. **German VI.** A continuation of course 11.

Senior year; second semester; three credits; three recitations Rec. 4-5, T. T. F.—Professor Bach.

Prerequisites: Courses 7, 8, 9, 10, 11.

13. **Spanish I.** Monsanto and Languellier Practical cours in Spanish; elementary forms; oral and written exercises; reading of easy texts, 100 to 150 pages.

Sophomore year; first semester; three credits; three recitations. Rec. 4-5, M. W. F.; 5-6, M. W. F.—Miss Kuney.

14. **Spanish II.** A continuation of course 14.

Sophomore year; second semester; three credits; three recitations. Rec. 4-5, M. W. F.; 5-6, M. W. F.—Miss Kuney.

Prerequisite: Course 13.

15. **Spanish** III. Grammar continued; reading of intermediate texts; composition; conversational exercises.

Junior year; first semester; three credits; three recitations. Rec. 9-10, W. F.; 10-11, M.; 12-12:50, M. T. T.; 2-3, M. W. F. —Professor Bach.

Prerequisites: Courses 13 and 14.

16. **Spanish IV.** A continuation of course 15.

Junior year; second semester; three credits; three recitations. Rec. 9-10, W. F.; 10-11, M.; 12-12:50, M. T. T.; 2-3, M. W. F.—Professor Bach.

Prerequisites: Courses 13, 14, 15.

17. **Spanish V.** Reading of advanced texts, 300 to 400 pages; oral and written exercises on texts read; conversation.

Senior year; first semester; three credits; three recitations. Hours to be arranged.—Professor Bach.

Prerequisites: Courses 13, 14, 15, 16.

18. **Spanish VI.** A continuation of course 17.

Senior year; second semester; three credits; three recitations. Hours to be arranged.—Professor Bach.

Prerequisites: Courses 13, 14, 15, 16, 17.

LATIN.

Miss Bowden.

Instruction in Latin includes one year of required work in the course in Pharmacy; two years elective in the department of Domestic Science and Art, and a third year as a general elective. The course consists of a thorough drill on the inflections, a study of etymology and syntax, and much practice in composition. The aim is to give the student some power in understanding technical terms used in science, and to increase his knowledge and vocabulary in English. The value of the study as an aid in English Grammar is also brought out.

In the translation, an effort is made to interpret the spirit of the ancient Romans and to get an insight into their character and civilization, as well as to secure some appreciation of their literature.

1. **Latin I.** A knowledge of syntax and inflections such as is given in any good preparatory Latin book; also the ability to read simple fables and stories.

The course in Pharmacy; freshman year; elective in the course in Domestic Science and Art; sophomore year; first semester; three credits; three recitations. Rec. 4-5, M. Tu. F. —Miss Bowden.

2. **Latin II.** A continuation of course 1.

The course in Pharmacy; freshman year; elective in the course in Domestic Science and Art; sophomore year; second semester; three credits; three recitations. Rec. 4-5, M. Tu. F. —Miss Bowden.

3. **Latin III.** Caesar's Gallic War; Latin composition; systematic study of Latin Grammar; Book I. and fifteen chapters in Book II.

Elective; junior year; first semester; three credits; three recitations. Rec. 8-9, T. T. F.—Miss Bowden.

4. **Latin IV.** A continuation of course 3; finish Book II. and read also Books III. and IV.

Elective; junior year; second semester; three credits; three recitations. Rec. 8-9, T. T. F.—Miss Bowden.

5. **Latin V.** Three orations of Cicero; Latin composition; Latin grammar; sight reading.

Elective; first semester; three credits; three recitations. Hours to be arranged.—Miss Bowden.

6. **Latin VI.** Three orations of Cicero; Latin composition; Latin grammar; sight reading.

Elective; second semester; three credits; three recitations. Hours to be arranged.—Miss Bowden.

HISTORY.

Professor Horner.

A. **Ancient History.** A survey of the ancient eastern nations, with a careful study of Greece and Rome.

The Secondary courses; first year; first semester; three credits; three recitations. Rec. 8-9, M. W. F.; 9-10, T. T. F.; 3-4, T. T. F.—Professor Horner.

B. **Mediaeval and Modern History.** A study of the social and political institutions of Europe, with discussions touching the material progress of these ages; famous works of art; foundations, inventions, discoveries, enterprises, improvements, and investigations.

The Secondary courses; first year; second semester; three credits; three recitations. Rec. 8-9, M. W. F.; 9-10, T. T. F.; 3-4, T. T. F.—Professor Horner.

1. **English History.** An outline of political and constitutional history to serve as a framework for the study of the economic, social, and intellectual development of the nation.

The course in Domestic Science and Art; freshman year; first semester; three credits; three recitations. Rec.4-5, M. W. F.—Professor Horner.

2. **United States History.** With special attention to the colonial, political, and industrial aspects.

The course in Commerce; freshman year; second semester; three credits; three recitations. Rec. 10-11, M. W. F.—Professor Horner.

3. **Modern Europe.** The Development of Modern Europe since the Congress of Vienna.

Elective; three credits; three recitations. Hours to be arranged.—Professor Horner.

ART.

Professor McLouth.
Mr. Dobell.

The chief aim of the course in Drawing is to teach the student to see truly, to obtain quicker perceptions, and to develop a keenness of observation, accurate judgment, and concentration of the mind. Few among us see truly what we see, and then only what we have been educated to see. Besides the general quickening of perception and the training of the eye to accurate sight, it affords the means of noting the forms of objects such as no written description can secure. It is a mode of expression second only to language itself.

In considering the study of drawing, its importance is too often lost sight of, and yet it may be safely said that drawing is a corner stone in the foundation of not only industrial education, but of a scientific education as well. In engineering courses, for instance, a knowledge of drawing is one of the first requirements. Drawing is an invaluable element in general education as a handmaid to the other branches of study; and the foremost educators advocate the study of drawing as the first step in any system of industrial education.

The instruction offered in Architecture is planned with the view to training men to become draftsmen in established offices or of carrying on the practice of architecture immediately upon graduation. It is the aim of the course, that proper attention be given to develop the cultural side of the student. No profession calls for broader training than does that of an architect. Due attention is paid to construction and a consistent amount of time is devoted to the study of the various architectural styles with special attention to modern day needs. Means of expression are arrived at by well-planned courses in freehand drawing, pen, pencil, and water color rendering.

It is, however, with training for domestic or residence work with which the department is especially concerned. The large percentage of work coming to an architect's office is in the nature of residences.

Until recently the architecture of America has had marvelous growth in all lines save this one. Today, however, the attention of everyone is directed towards civic improvement, and no one thing adds more to the attractiveness of a city than the homes of taste which it possesses. The designing of country houses, long neglected, is also becoming a source of considerable income to the practicing architect. Much attention, then, in the course offered here, is given to the problem and planning of the house.

DRAWING.

A. **Drawing I.** The purpose of this course is to teach the student to see correctly and to judge accurately, to give him enough general knowledge of drawing to make it an aid in the pursuance of other branches of study where graphic representation is an important feature of the work; and to give him such a training as will best and most fully meet the needs of the subsequent work.

The course consists of the principles of drawing, elementary perspective and its application, drawing in charcoal and pencil (line and light and shade) from geometric forms, block casts, and simple still life. Much attention is given to proportion and accurate outline, because in laboratory drawing, such as in Botany and Zoology, true outline is of greatest importance.

The Secondary courses and an entrance requirement to all degree courses; first year; first semester; two credits; four class periods. Rec. 11-12, M. T. W. T.—Professor McLouth.
11-12, M. T. W. T.; 2-3, T. W. T. F.; 3-4, T. W. T. F.—Mr. Dobell.

B. **Machine Sketching.** This course is continued throughout the second semester, but is divided and designed to meet the requirements of the several Engineering courses. A considerable proportion of the time is given to machine sketching to acquaint the student with the method of securing and retaining data for complete working drawings by the aid of sketches; making and reading working drawings; detailing complicated parts, orthographic projection and lettering. The conventions of practice and the method of making clear, accurately dimensioned sketches for working drawings is given first consideration. In machine sketching, the objects from which the sketches are made are selected from approved designs of commercial machinery and electrical apparatus to give familiarity with correct forms. This work is carried on in the machine shops.

The Secondary course in Mechanic Arts; is also an entrance requirement to all of the degree courses in Engineering; first year; second semester; three credits; six class periods. Rec. 9-10, daily; 2-3, M.—Professor McLouth.

Prerequisite: Course A.

C. **Drawing II.** This course is designed for students in Agriculture, Domestic Science and Art, Forestry, Commerce, and Pharmacy, to further carry out the aims of Course A; but instead of drawing in charcoal from geometric forms and block casts, more complicated drawings are made, the work being in pencil and pen and ink from plants and insect specimens. Students in the course in Domestic Science and Art will give special attention to flowers and foliage with a view to design.

The Secondary courses in Agriculture, Domestic Science and Art, Forestry, Commerce, and Pharmacy; first year; second semester; two credits; four class periods. Rec. 11-12, M. T. W. T.—Professor McLouth; 11-12, M. T. W. T.; 2-3, T. W. T. F.; 3-4, T. W. T. F.—Mr. Dobell.

Prerequisite: Course A.

D. **Drawing III.** This course is given to better equip the student in the course in Domestic Science and Art with a strong foundation for the applied art work following, that they may be better able to carry out the subsequent courses intelligently. The course is a continuation of Drawing A.

The Secondary course in Domestic Science and Art, and an entrance requirement to the degree course in Domestic Science and Art;second year; first semester; two credits; four class periods. Rec. 10-11, M. T. W. T.—Professor McLouth.

Prerequisites: Courses A and C.

E. **Drawing IV.** A continuation of course D.

The Secondary course in Domestic Science and Art, and an entrance requirement to the degree course in Domestic Science and Art; second year; second semester; two credits; four class periods. Rec. 10-11, M. T. W. F.—Professor McLouth.

Prerequisites: Courses A, C, and D.

F. **Drawing V.** The secondary course in Mechanic Arts; first semester; three credits; six class periods. Rec. 9-10, daily; 3-4, M.—Professor McLouth.

1. **Freehand Lettering and Title Design.** This course is especially designed for students in Civil Engineering, and con-

sists of freehand lettering, the construction of Roman and Gothic letters and spacing, design of lines and titles, the single line titles, the choice of style and size of letters, how to lay out and execute the design and tinting.

The course in Civil Engineering; freshman year; first semester; two credits; two laboratory periods. Rec. 2-4, T. T.—Professor McLouth.

Prerequisites: Courses A, C, and D.

2. **Stencil Design I.** Stenciling is coming to be the principal factor in home decoration, not only of walls, as is generally thought and expressed by the word fresco, but also of wall coverings, as well as stenciling on textiles that can be taken down the same as costly tapestry. Draperies of all kinds, curtains, table coverings, runners, screens, and sofa pillows are among the things that can be beautifully stenciled. And all this is not beyond our reach. It can be done by all to a greater or less degree of success. Even the most modest degree of success will, without doubt, add materially to the beauty and attractiveness of a home. It is then with this purpose in view that course 2 is given. The work is a continuation of Course D, giving special attention to the study of flowers and foliage with the idea of design. Each student will execute a number of patterns, cutting stencils suitable for application to the materials (linen, crash, and art burlap) most available for house decoration.

The course in Domestic Science and Art; sophomore year; first semester; two credits; two laboratory periods. Lab. 2-4, W. F.—Professor McLouth.

Prerequisites: Courses A, C, D, and E.

3. **Stencil Design II.** A continuation of course 2.

The course in Domestic Science and Art; sophomore year; second semester; two credits; two laboratory periods. Lab. 2-4, W. F.—Professor McLouth.

4. **Cast and Still Life Drawing.** This course offers advanced work in drawing—line and light and shade from casts and still life, and is designed especially for students who enter the upper classes, though without the required credit and yet are capable of pursuing work above the elementary.

First and second semester; two credits; four class periods. Hours to be arranged.

5. **Lettering and Card Writing.** This course is planned to

meet the needs of the students in the Commercial department. The principle of letter and title design, the use of the shading pen and air brush are taught by means of graded plates, 25 in number, made in the drawing room.

The course in Commerce; sophomore year; second semester; two credits; two laboratory periods. Lab. 8-10, M. F.—Mr. Dobell.

6. **Drawing VI.** The course in Domestic Science and Art; freshman year; second semester; three credits; three laboratory periods. Lab. 4-6, M. T. T.—Professor McLouth.

ARCHITECTURE.

1. **Architectural Drawing.** In this course the student is first introduced to strictly architectural work. It familiarizes him with the use of the T-square and triangle, the architect's scale and drawing instruments. Beginning with simple problems in direct projection, the course progresses to practical working drawings, adapting the student to take the usual work in much the same manner as in an architect's office.

Much attention is given to lettering, neatness and style. Twenty or more plates are prepared, and work is carried on in much the same manner as n an architect's office.

Elective; freshman year; first semester; four credits; four laboratory periods. Hours to be arranged.—Mr. Dobell.

2. **Orders.** A continuation of course 1, is in reality the first course in design. A thorough study of the proportions of the classic orders of architecture and the graphical method of casting shades and shadows. The drawing-room work will consist of the rendering, in wash, of plates made the preceding semester in Architectural Drawing, and freehand sketches of the five orders from casts. Recitations will take up the study the proportions of the various orders upon which the class will be closely quizzed, and there will be frequent talks on the historical development and meaning of the classic styles, and their relations to present day needs. One problem in original design will conclude the semester's work.

Ware's American Vignola will be used as a text.

Elective; freshman year; second semester; four credits; one recitation; three laboratory periods. Hours to be arranged—Mr. Dobell.

Prerequisites: Architecture 1 and Drawing A.

WATER COLOR RENDERING.

A collateral study with pen and pencil rendering, training the student to handle the brush and color. A purely architectural treatment of water color painting, beginning with flat wash plates, followed by studies in still-life in the drawing room and advancing to out-of-door sketching of trees and buildings.

Elective; freshman year; first and second semesters; one credit; two recitation periods. Hours to be arranged.—Professor McLouth.

Prerequisite: Drawing A and C.

PEN AND PENCIL RENDERING.

The beginning course in the study of methods and means of architectural expression. The work is designed to give to the student the first insight into the handling of the pen and the pencil. Freehand sketches of still-life groups in the drawing room, followed by the sketching of details of buildings on the campus; a study of the manners of portraying different building materials, such as brick, stone, terra cotta, stucco, etc.

Elective; freshman year; first and second semesters; two credits; four recitation periods. Hours to be arranged.—Professor McLouth.

WOOD CONSTRUCTION.

With Kidder's Building Construction, Part II., Carpentry as a text book, a complete survey is made of the best methods of frame construction. The properties of the wood with methods current in manufacturing, working and finishing them, and their proper constructive use in building are carefully studied, and a number of drawing room plates are prepared by each student, together with detailed freehand sketches from buildings in process of construction.

Elective; sophomore year; first semester; four credits; one recitation; three laboratory periods. Hours to be arranged.—Mr. Dobell.

6. **Metal and Masonry.** A continuation of the study of construction begun the preceding semester. Kidder's Building Construction and Superintendence is used as a text. All types of foundations—brick, stone, concrete and pile—are studied, with detailed inquiry into the use, defects, and qualities, modes

of preparation, finish, and efficiency of each; the manufacture, design and use of terra cotta, and a complete study of modern steel and fireproof construction.

The drawing room plates will consist of drawings of typical details of masonry and metal construction.

Elective; sophomore year; second semester; four credits; one recitation; three laboratory periods. Hours to be arranged.—Mr. Dobell.

8. **History of Architecture I.** With the aid of the stereopticon, the story of the rise, glory, and decline of the various styles of architecture is told. During the first semester the Egyptian, Persian, Assyrian, Greek, and Roman styles are studied. In the second semester's work the early Christian, Byzantine, Romanesque, Gothic, Renaissance, and Modern styles are studied. Contemporary work is closely noted in the study of the modern styles as it is to meet the needs of a present generation that the student is trained.

Offered in 1911-12 to students with advanced standing in architecture, and open to juniors and senior in other departments. Required in Landscape Gardening.

Fletcher's History of Architecture is used as a text.

First semester; four credits; one recitation; three laboratory periods. Hours to be arranged.—Mr. Dobell.

9. **History of Architecture II.** A continuation of course 8. Second semester; four credits; one recitation; three laboratory periods. Hours to be arranged.—Mr. Dobell.

10. **Domestic Planning.** The problem of the house is one upon which the architect is largely dependent for his practice. It seems very profitable to begin early in the course with a consideration of domestic planning and design.

The uses, importance, placing, and relation of each room to the other parts of the house; the materials of construction and their effective use; the house and its site are all taken up in this study of domestic architecture.

A course offered during 1911-12 to sophomore, junior, and senior students as an elective and to students in advanced standing in architecture.

Three credits; three laboratory periods. Hours to be arranged.—Mr. Dobell.

LIBRARY.

Miss Kidder.
Miss Lewis.
Miss Knepper.
Miss Herse.

1. **Library Practice.** This course teaches by means of lectures and practical problems the use of catalogues, indexes, and reference books, such as dictionaries, encyclopedias, atlases, handbooks of general information, handbooks of history, statistics, quotations, etc.

All degree courses; freshman year; first semester; one credit; one recitation.

The Library occupies three-fourths of the second floor of the Administration Building. The reading and general reference room is large, well lighted, and extends entirely across the building, and is supplied with about two hundred leading magazines and newspapers. Through the courtesy of the editors, a large number of farm, orchard, stock and home journals and county newspapers of Oregon are received regularly at the reading room. The book stacks, occupying adjacent rooms contain about eight thousand volumes of standard works of history, biography, engineering, agriculture, natural science, general literature and reference, and about 1,500 reports and other publications from the Agricultural Colleges and Experiment Stations of all the States, and ten thousand bulletins and pamphlets. The library is a designated depository of United States Government publications, of which it has about six thousand volumes. Over two thousand of these were received as a gift from the library of the late United States Senator Dolph.

Practical use of the books has led to the establishment of small reference libraries kept in the rooms of the following departments: General Chemistry, Agricultural Chemistry, Animal Husbandry, Agronomy, Horticulture, Botany and Forestry, Bacteriology, Zoology, Pharmacy, Civil, Mechanical, Electrical and Mining Engineering. Each department library is in charge of the head of that department, to whom application must be made for the use of the books.

All books are classified and catalogued according to the Dewey decimal system. Books may be drawn for home use by all officers and students of the College. Books may be kept by the students for two weeks with the privilege of a renewal and by officers for any reasonable time. All students have free access to the shelves of the reference library in the reading room, but apply at the delivery desk for other works which they may desire.

The reference library consists of encyclopedias, dictionaries and standard reference books in the different departments of study, together with books designated by professors for collateral reading in the various courses of instruction. A small collection of books for cultural reading is also kept in the reading room. In the same room and accessible to all readers is the card catalogue of the general library, including the books of the department libraries. The catalogue is one of authors and subjects under one alphabet on the dictionary plan; there is also a card catalogue of the publications of the U. S. Dept. of Agriculture, and a card index to the publications of the State Experiment Stations.

PHYSICAL EDUCATION.

Professor ———————
Mr. Arbuthnot.
Miss Williams.
Miss Houston.

It is the purpose of the department of Physical Education to furnish students ample opportunity for physical development. The ill effects of the sedentary life of students may be counterbalanced by activity in the gymnasium and on the athletic field. All secondary, freshman, and sophomore students are required to take two periods of exercises each week throughout the college year. Before being assigned to a class, each student will be given a thorough physical examination. The more important measures will be taken, and the condition of the vital organs noted. Advice will be given as to the best exercises to be used in securing a symmetrical development. Students below normal in health and muscular strength will receive special attention and consideration.

Fall Work. This course consists chiefly of outdoor exercises, cross-country running, baseball, tennis, football, and other games.

Winter Work. Calisthenics and light apparatus drills; class work on the horse, parallel and horizontal bars, rings, and similar apparatus; recreative games; basket-ball, wrestling, and boxing.

Spring Work. Track and field athletics, baseball, tennis, cross-country running.

Normal Course. Many students expect to take up the profession of teaching after graduation from college. A general knowledge of the theories of physical education and methods of gymnastics and athletic instruction is often of material assistance in securing important teaching positions.

Students showing an especial aptitude and interest in physical education will be admitted to this course. The work will include lectures on the history and development of physical training, the general physiological principles of exercises, methods of teaching and first aid to the injured. Calisthenics, gymnastic drills, apparatus work, games, and athletics will comprise the practical work of the course.

Elective; hours and credits subject to arrangement.

All sophomores, freshmen, and students of the Secondary courses, unless physically unable, are required to take physical training. The classes meet twice a week for sixty-minute periods.

The course is planned for consecutively progressive work, and consists of systematic exercises for the development of all parts of the body. The purpose of the course is to develop a strong and symmetrical physique, with a graceful and easy carriage; to correct physical defects and deficiency in nervous control, and to insure the individual health and organic vigor.

In addition to the regular class work in the gymnasium, various games and pastimes are open to all young women of the College. The course is designed to be recreative as well as educational, and the cultivation of the play instinct is emphasized as an important factor in physical training.

Women pursuing this course are required to provide themselves with a gymnasium suit, consisting of a blouse waist and bloomers, with the regulation gymnasium shoes.

Elementary Course. Free developing exercises for poise, presence, and bearing, for the vital organs, for respiration; light apparatus work, Indian clubs, dumb-bells, wands, gymnastic tactics; military and fancy marching; harmonic movements; gymnastic games.

Advanced Course. Difficult free movements from Swedish and German systems; apparatus work of various kinds; single stick; marching, running, jumping; artistic gymnastics; Gilbert work and folk dances.

HYGIENE.

This course is arranged to give general information regarding the laws of health to all freshman students. Its purpose will be to instruct in a popular way in the general principles of hygiene. Lectures will be given, by specialists, that lead to a comprehensive knowledge of the human machine and its relation to healthful social life. Lectures on bacteriology, and its relation to health and well being, will be included in the course. Ventilation, physical exercise, recreation, diet, and bathing, will also be discussed. Hygiene of occupation will be considered and the importance of good physical habits as a commercial asset will be emphasized in this course.

The course in Hygiene for young women will be given in a separate section.

All degree courses; freshman year; second semester; one credit; one lecture.

COURSE NUMBERS IN PHYSICAL EDUCATION.

1. First year Secondary; first semester.
2. First year Secondary; second semester.
3. Second year Secondary; first semester.
4. Second year Secondary; second semester.
5. Freshman year; first semester.
6. Freshman year; second semester.
7. Sophomore year; first semester.
8. Sophomore year; second semester.

INDUSTRIAL PEDAGOGY.

Professor Ressler.
Mr. ————

Under the provisions of the Nelson Act, passed by the National Congress in 1907, the "special preparation of instructors for teaching the elements of agriculture and mechanic arts" is made a part of the work of the land-grant institutions and money appropriated therefor. U. S. Commissioner of Education, Dr. E. E. Brown, in discussing the matter at the time the Nelson bill was pending, recognized that agricultural education cannot be safely extended beyond the supply of properly trained teachers. To quote from his statement:

"I am very much concerned with reference to the danger which I foresee of a painful shortage of teachers of agriculture, You will know that we are just now on a wave, and apparently a rising wave, of interest in agricultural education. Seven states have already provided for agricultural high schools; ten states have made provision, by law, within a very few years, for the teaching of agriculture in the elementary schools; in nine states, bills have been pending in the legislatures of the present year, providing for the extension of such teaching. At the same time, there is no extensive provision made for the training of teachers of such schools.

"The schools simply cannot be made without the teachers. The only thing we can expect from such a state of affairs is that this rising wave will, in a few years, become a sharply receding wave; for the public will not continue to take this lively interest in agricultural education of elementary and secondary grade if they find that the subject of agriculture is much more badly taught than the other subjects in the schools."

Oregon was one of those states which provided for the teaching of agriculture in the elementary grades, and also without any plan of preparing the teachers. While there has been no "receding wave" of interest in agricultural education. comparatively no results have been obtained. The elementary teachers are not only untrained but there are no trained supervisors. An interest is now growing in Oregon in high school instruction in the subject and it is recognized that this calls for specially trained teachers.

The new 1911 school law providing for closer supervision in the rural schools offers just the opportunity for making this instruction in the country really significant. The special teacher in the town schools will solve that problem. In the meantime, we must await the gradual preparation of the grade teachers through Normal school training and the course in the high schools. The College offers summer courses for the grade teachers, who of necessity, however, regard agriculture as only one of the large number of branches they must teach. This summer school provides a means also of acquainting the present county and town supervisors, who have had no opportunity for technical training, with the nature of the instruction. The College must do still more by extension courses and local institutes with some systematic visitation and inspection of the teaching.

This is a particularly inviting field for young men, who desire to identify themselves with the new education and assist in working out a problem not only of interest from the standpoint of educational administration but a matter of deep economic and social concern in our national life. In like manner, industrial education in manual training and commerce touches the vital questions in both academic and social relations. For young women, the teaching of domestic science and art offers all the attractions that the other industrial branches have for the young men. In a number of ways, the work is even more important and presents a field not only different from the ordinary teaching but of a character that appeals to the natural interests of woman alone.

The department of Industrial Pedagogy offers courses in the preparation of teachers for the public schools in the subjects of elementary agriculture, domestic science and art, commerce and manual training. The introduction of these branches into the elementary and high schools of the State is proceeding rapidly. School officers are confronted with the problems of courses of instruction, estimates of equipment, correlation of the new with the old subjects in the curriculum, and others, in addition to the main one of specially trained teachers.

This department, in conjunction with the other College departments concerned, has undertaken to prepare tentative courses of study in each of the industrial branches, adapted to the age of the pupils and to the social demands on the school. It will also undertake to assist teachers in the work of instruction, by general and special suggestions through College and other publications, and by correspondence and visitation where possible. Detailed lists of equipment and apparatus, with cost suitable for small and large schools, will be furnished on request.

Students electing this course will be registered in the school in which their distinctive subject is given. Thus those who desire to prepare to teach and supervise Agriculture in the high school and grammar grades will be registered in the School of Agriculture and will receive their degrees in Agriculture on completion of the requirements. The courses in Pedagogy will be substituted for certain courses in the outline of the degree course in Agriculture, to be determined by the dean and the professor of Industrial Pedagogy, according to the special needs of the individual student.

In the same way, students desiring to prepare to teach Domestic Science and Art, Commerce and Manual Training will be registered in the schools of Domestic Science and Art, Commerce and Mechanic Arts.

The following courses will be offered during the year 1911-12:

1. **Psychology I.** A study of general psychology by lectures, recitations, and reports; a description of the facts and laws of mental activity with applications to the ordinary affairs of life; demonstrations and experiments showing the relation of mental life to the nervous system; the significance of habit in conduct and character.

Junior year; first semester; three credits; three recitations.

2. **Psychology II.** The application of the facts and principles of psychology to teaching; a study of the growth of the child mind and the relations of the various periods to educational organization; adaptation of courses of instruction, methods of teaching, discipline, and general school activities to the stages of the pupil's development; lectures, recitations, reports, and simple investigations.

Senior year; first semester; two credits; two recitations.

3. **History of Education.** A general review of the growth and development of education and its relation to the civilization of the times; particular attention given to the rise of industrial education in Europe and America, and its place in the social and political life of the country.

Sophomore year; second semester; three credits; three recitations.

4. **School Management.** A study of the organization of the school including the relations and duties of pupils, teachers, supervisors and school board. The place of the special teacher in the system; questions of discipline; practical exercises in making programs, keeping records, filling out reports, and performing other duties required by the Oregon school law.

Sophomore year; first semester; three credits; three recitations.

5. **General Method.** The principles of teaching, including method of the recitation, preparation of lesson plans, and observations of model teaching; library references to periodicals and current literature relating to public school agriculture, domestic science and art, commerce and manual training.

Junior year; second semester; three credits; three recitations.

6. **Special Method I.** (a) A careful, detailed study of the public school course in Agriculture, with numerous lesson-plans on typical subjects; observation of model lessons and practice teaching.

Special Method I. (b) Same as a, applied to public school course in Domestic Science and Art.

Special Method I. (c) Same as a, applied to public school course in Manual Training.

Special Method I. (d) Same as a, applied to public school course in Commerce.

Senior year; first semester; two credits; two recitations.

7. **Special Method II.** (a, b, c, d) Continuation of Special Method I., a, b, c, d.

8. **School Administration.** A discussion and analysis of the American system of education, with an interpretation of the purpose and spirit of each division; problems of administration and teaching in the public schools; the correlation of the industrial branches with the other subjects in the curriculum. Lectures, reading, reports and studies on the Oregon schools.

Senior year; second semester; two credits; two recitations.

MILITARY SCIENCE AND TACTICS.

—————, Commandant.

"I cannot help plead to my countrymen, at every opportunity, to cherish all that is manly and noble in the military profession, because peace is enervating, and no man is wise enough to foretell when soldiers may be in demand again."—General Sherman.

The military body of this College consists of one regiment of infantry having three battalions of four companies each, a hospital corps detachment, and a band of thirty-two instruments. The drill and administration are the same as in the Regular Army.

One of the objects of this instruction is to prepare the cadet so that upon graduation he will be thoroughly competent to hold a commission in the National Guard or volunteer army.

The greater part of the instruction is directed toward having cadets adopt a systematic rule of conduct inculcating accurate methods in everything they undertake. This not only places cadets in the condition to receive favorably all instruction in the military department, but facilitates study in the other departments, and becomes a valuable asset to a young man going out into the world in any profession.

Military drill improves the habits and manners of the student, develops him physically, and gives him that military knowledge which is desirable every citizen should possess that he may render intelligent aid to his country or state in time of need. It cultivates a manly spirit, ready and implicit obedience, respect for authority, and self-restraint—all qualities of inestimable value to a young man.

Instruction in the course is prescribed for all undergraduate male students. Students physically unable to bear arms are excused from active military drill and will be assigned some light duty by the head of the department. The instruction is both practical and theoretical.

The new armory contains a drill room 120x300 feet in extent, ample office room, and suitable rooms for storing guns and other ordnance.

Eight hundred and forty modern U. S. magazine rifles (Krag-Jorgensen) and equipment have been obtained. Other necessary accoutrements and apparatus for the thorough equipment of the military department are furnished by the College.

Appointment and promotion of officers and non-commissioned officers, and their relative rank in each grade, are determined according to the military standing of the cadets, based upon a careful consideration of the following points: knowledge of drill and other duties as determined by examination, practical application of this knowledge on the drill field, and recommendations of superior officers; zeal, soldierly bearing, and aptitude for command; character; military record; general standing in College.

Commissioned officers are selected from the senior class or such as have had three or more years of drill; non-commissioned officers from the junior and sophomore classes; all reductions are to the grade of private. All appointments and promotions are made by the commandant with the approval of the President of the College.

Drill. Secondary, freshman, sophomore, junior and senior years, four hours per week. Senior privates (excepting bandmen) who have had two or more years of drill may be excused from such drill during the second semester. The practical course in infantry includes the school of the soldier, company and battalion; in close and extended order; evolutions of the regiment; ceremonies; guard and outpost duty; target practice and battle tactics.

Paragraph 20, General Orders No. 155, War Department, July 24, 1907, directs that, "Upon occasions of Military Ceremony, in the execution of drills, guard duty, and when students are receiving any other practical military instruction, they shall appear in the uniform prescribed by the institution. They shall be held strictly accountable for the arms and accoutrements issued to them."

The wearing of mixed civilian and uniform clothing is prohibited at all times. The uniform complete costs about $18.00, and is of the regulation olive drab color adopted by the United States Army, and makes a very neat and serviceable suit.

Students must come prepared to deposit the price of the uniform, for which they will be measured as soon as they learn the position of a soldier.

Proficiency in the military department is a requisite to graduation.

1. **Theoretical Instruction I.** This instruction consists of recitations in Infantry, Drill Regulations, Field Service, Regulations, Manual of Guard Duty, and Army Regulations; instruction in military correspondence and reports and returns; lectures on military subjects that pertain to the organization and administration of the United States military forces in peace and in war.

Junior year; first semester; one credit; one recitation or lecture.

2. **Theoretical Instruction II.** Junior year; second semester; one credit; one recitation or lecture.

3. **Theoretical Instruction III.** Senior year; first semester; one credit; one recitation or lecture.

4. **Theoretical Instruction IV.** Second year; second semester; one credit; one recitation or lecture.

The Brodie Banner is a richly decorated silken banner that is carried by the best drilled company as a mark of merit. Each year it goes to the company making the highest total number of credits in competitive drill. Company M carries the honor for 1910-11.

ROSTER.

Colonel......J. L. McAllister
Lieut.-Colonel....L. C. Keene
Capt. and Adj...H. H. Barbur
Capt. Com......E. B. Lemon
Capt. Q. M........P. R. Poff
Sergt. Major..L. R. McKenzie
Q. M. Sergt...R. U. Williams
Ord. Sergt......M. A. Young
Color Sergt..L. A. Duckworth
Color Sergt.....L. C. Turner
Chief Trumpeter...G. F. Hess

Band.

Director.........H. L. Beard
Chief Mus....F. G. McGinnis
Drum Major......R. Schultz
Prin. Musican..H. L. Prather
Sergeant.........L. C. Reed
Sergeant.......E. Woodcock
Corporal......W. D. Andrews
Corporal.........J. T. Burch
Corporal........V. J. Brown
Corporal.....E. M. McManus
Corporal........H. R. Olson
Corporal.......L. A. Prescott
Corporal.........J. B. Yoder

First Battalion.

Major..........D. S. Young
1st Lieut.-Adjt...O. B. Hardy
2nd Lieut.-Q. M...C. H. Eagy
Sergt. Major......J. B. Mann

	Company A.	Company B.
Captain	L. C. Rulifson	E. J. Atkinson
First Lieutenant	O. N. Moore	R. F. Ginther
Second Lieutenant	M. T. McAllister	W. Dumoulin
First Sergeant	S. O. McFadden	K. B. Grimm
Sergeant	F. W. Clyne	E. S. Dement
Sergeant	C. P. Moffitt	H. S. Turlay
Sergeant	R. L. Smith	O. J. Olson
Sergeant	J. W. Graham	P. Watson
Corporal	W. H. Foster	L. F. Cronemiller
Corporal	C. E. Schultz	F. O. McMillan
Corporal	L. B. Seavey	J. E. Norton
Corporal	A. R. Tartar	S. W. Richardson

	Company C.	Company D.
Captain	H. J. Gilkey	W. C. Dyer
First Lieutenant	A. Lafky	W. C. Thornton
Second Lieutenant	L. M. Harris	R. Borden
First Sergeant	C. R. Thomson	F. A. Miller
Sergeant	H. K. Dean	C. C. Levan
Sergeant	S. H. Arbuthnot	J. H. Mack
Sergeant	F. G. Brown	F. E. Plympton
Sergeant	G. P. Wanstrom	R. W. Brown
Corporal	L. D. Tycer	F. W. Smith
Corporal	J. C. Summerlin	B. H. McNamee
Corporal	B. Ferguson	C. B. Montague
Corporal		A. J. Wilson

Second Battalion.

Major	W. R. Carlson	2nd Lieut.-Q. M.	
1st Lieut.-Adjt.	M. T. Calef	Sergt. Major	G. Carroll

	Company E.	Company F.
Captain	H. J. Pfandhoefer	B. Olsen
First Lieutenant	C. A. French	M. A. Smead
Second Lieutenant	W. E. Taylor	L. Beaty
First Sergeant	O. G. Reeves	E. G. Rice
Sergeant	R. O. McGee	M. Koon
Sergeant	G. W. Morris	McK. Huntington
Sergeant	A. E. Maneely	E. E. Horning
Sergeant	P. T. Wagner	
Corporal	J. C. Cook	W. H. Demham
Corporal	G. D. Cronemiller	W. F. Morris
Corporal	H. G. Smith	J. R. Williams
Corporal		D. McClaire

	Company G.	Company H.
Captain	G. L. Harper	H. J. Eberly
First Lieutenant	E. A. Olson	C. W. Allen
Second Lieutenant	J. D. Carnegie	J. Q. Adams
First Sergeant	V. G. Gibson	L. Wiegel
Sergeant	W. B. Beasley	D. J. Perard
Sergeant	J. M. Caughell	L. J. Stutz
Sergeant	M. G. Lafky	G. S. Paxson
Sergeant	W. E. Morris	
Corporal	H. C. Cooper	F. P. Wentz
Corporal	R. Cruit	R. A. Blanchard
Corporal	N. E. Likins	M. R. Hoff
Corporal	S. E. Wisdom	L. E. Wahlberg

Third Battalion.

Major..........C. L. Nelson 2nd Lieut.-Q. M............
1st Lieut.-Adjt..A. A. Asbahr Sergt. Major...F. H. Boulan

	Company I.	Company K.
Captain	C. L. Jamison	I. R. Chapman
First Lieutenant	R. D. Bridges	J. K. Fairchild
Second Lieutenant	H. C. Montgomery	A. M. Jeppesen
First Sergeant	H. Belknap	A. F. Eschricht
Sergeant	A. V. Swartout	E. E. Goshorn
Sergeant	J. C. Leedy	G. P. Hicinbotham
Sergeant	H. M. Teal	R. C. Cochran
Sergeant	L. E. Emery	O. D. Sitton
Corporal	R. W. Alspaugh	F. M. Weatherford
Corporal	R. R. Hamersley	R. B. Thompson
Corporal	D. B. Hogan	W. H. Brown
Corporal	G. Kelly	J. L. Vail

	Company L.	Company M.
Captain	H. A. Lindgren	A. P. Gibson
First Lieutenant	A. L. Raines	C. E. Stricklin
Second Lieutenant	W. Keck	C. E. Armstrong
First Sergeant	A. L. Burdick	C. N. Anderson
Sergeant	W. A. Armstrong	C. E. Sitton
Sergeant	R. L. Stoneberg	W. S. Sibray
Sergeant	H. I. Smith	O. G. Voss
Corporal	J. E. Cooter	G. Sanborn
Corporal	H. B. Lamley	C. E. Montague
Corporal	F. G. Pelland	D. C. Howard
Corporal	I. Severance	J. Chernis

THE SCHOOL OF MUSIC.

Prof. William Frederic Gaskins, M. B.,
Director
Voice Culture, Singing, Conducting

Genevieve Baum-Gaskins,
Voice, Organ, Piano

May Babbitt-Ressler,
Piano, Music Pedagogics

Florence Bowden,
Violin, Mandolin, Guitar, Banjo

Harry L. Beard,
Bandmaster

DEPARTMENT OF VOICE

Prof. William Frederic Gaskins, Mus. Bach.,

Voice Culture, Singing, Conducting, Music History, Director of the School of Music. Post Graduate Hillsdale College Conservatory, Post Graduate American Conservatory.

Post Graduate pupil of Karlton Hackett, Chicago; John M. Merrill, Boston; J. Harry Wheeler, New York; Frederic Leason, Philadelphia; J. C. Wilcox, New York; J. D. Mehan, New York.

Genevieve Baum-Gaskins,

Voice, Organ, Piano, Accompaniments

Graduate American Conservatory, Chicago. Pupil of William Nelson Burritt, New York; Karlton Hackett, Chicago; John J. Hattstaedt, Chicago; William Middleschulte, Chicago; William Frederic Gaskins, Chicago; John Dennis Mehan, New York.

DEPARTMENT OF PIANO.

May Babbitt-Ressler,
Pupil of Arthur Foote, Boston.
Genevieve Baum-Gaskins,
Pupil of John J. Hattstaedt, Chicago; Graduate American Conservatory, Chicago.

DEPARTMENT OF STRINGED INSTRUMENTS.

Florence Bowden,

Violin, Mandolin, Guitar, Banjo; Pupil of Max Meyer, Boston.

DEPARTMENT OF BRASS AND WOOD INSTRUMENTS.

Harry L. Beard,

Band conducting. Instruction in the theory and art of playing band instruments.

In response to the desire of students, their parents, and other friends of the Oregon Agricultural College, provision has been made for the presentation of comprehensive courses of instruction in music.

The studious atmosphere, wholesome discipline and attractive environment of the College are conditions favorable alike to the beginner and the advanced student, who may begin their courses at any time and have the privilege of advancing to completion as rapidly as is consistent with creditable scholarship.

The members of the faculty have received training in the best eastern music schools and of eminent specialists; each has had ample experience in teaching; all employ superior methods of instruction and give frequent evidence of their ability, skill and experience, by performing in public.

The advantage of beginning music study with instructors skilled in the psychology and practice of teaching cannot be overestimated, and results in an appreciable saving of time and expense and a maximum gain in efficiency. Hence the School of Music offers the following comprehensive courses of study to earnest students who wish to acquire scholarly musicianship at moderate expense. These courses may be begun at any time during the school year, and all students may advance as rapidly as is consistent with good scholarship. The time required for completion of the courses is dependent upon the age, previous preparation, talent, ability, and character of the work of each student.

Students in the School of Music may enter classes in the several departments of the College, and to enhance their general culture are encouraged to take at least one study throughout the school year other than the work required in the regular music courses. There being no other music instructors connected with the College, students of the Oregon Agricultural

College will be permitted to study music only with the instructors connected with the School of Music.

The following courses are offered:

1. **Voice I.** Exercises will be given for correct breath control; purity of tone production; freedom of action and blending of registers; articulation and correct pronunciation and enunciation of vowels and consonants; elements of phrasing and style. Students will appear on programs if required, singing from memory, and will attend all recitals and rehearsals unless otherwise specified.

Required: Two lessons a week in voice, practice with instrument, one or two hours daily; sight reading and ear training, one hour a week; harmony and history of music, two hours a week each; choir and chorus practice throughout the year.

2. **Voice II.** This course consists of exercises for tone placing; phrasing and style; legato, marcato and portamento delivery. Physiology of vocal mechanism, songs, and exercises of medium grade in English, German, or Italian. All students will attend recitals, and appear upon programs if required, singing from memory.

Required: Two lessons a week in voice; practice with instrument, one to two hours daily; two lessons a week in harmony; one lesson a week in counterpoint; advanced history of music thirty-six weeks; choir and chorus practice throughout the year.

Prerequisite: Course 1 or its equivalent.

3. **Voice III.** This course embraces the study of tone color; agility; trill; messa di voce; recitation; declamation; phrasing, style; songs in English, German, Italian, or French. All students are required to attend recitals and rehearsals and appear upon programs when requested, singing from memory.

Required: Two lessons a week in voice; two lessons a week in harmony and counterpoint; practice with instrument, one to three hours daily; one lesson a week in theory and composition; choir and choir practice throughout the year. A certificate is granted upon the satisfactory completion of this course.

Prerequisite. Course 2 or its equivalent.

4. **Voice IV.** This course embraces advanced work in vocal technique by means of difficult exercises, songs, oratorios, operatic arias, memory singing in public; all students are re-

quired to attend recitals and rehearsals and appear upon programs when requested.

Required: Two lessons a week in voice; practice with instrument, one to three hours daily; choir and chorus practice throughout the year. A gold medal will be granted upon the satisfactory conmpletion of this course.

Prerequisite: Course 3 or its equivalent.

5. **Piano I.** In this course the student is required to memorize and play with correct fingering all chromatic major and both forms of minor scales, legato in quarter and eighth notes; arpeggios formed on major and minor triads; major and minor chords in triad and four-note form; dominant seventh chord four-note form with all inversions played with sustained arm touch, hands separately; figured chords in quarter and eighth notes; octaves and staccato octaves in any required scale; sight reading, and six compositions of third grade.

Required: Two lessons a week on piano; two lessons a week in harmony; two lessons a week in music history; practice with instrument, three to four hours daily.

Prerequisite: Preparatory work of such scope as to insure fair scholarship.

6. **Piano II.** The work of this course requires that the student play from memory with correct fingering, all major, minor, and chromatic scales; dominant and diminished seventh chords with their inversions; broken chords played in quarter and eighth notes; arpeggios formed on the major and minor triads; metronome quarter note; one hundred; staccato octaves in major scales, quarter and eighth notes; sight reading; recognition of major and minor scales, and all intervals from the tonic of the major scale.

In addition to the above, the student must have satisfactorily completed advanced music history in the regular second year class.

Required: Two lessons a week on piano; two lessons a week in harmony; one lesson a week in counterpoint; two lessons a week in advanced music history for thirty-six weeks; practice with instrument, three to four hours daily.

Prerequisite: Coure 5 or its equivalent.

7. **Piano III.** In addition to the work of the foregoing courses the student must play from memory with correct fingering, major and minor scales in thirds, sixths and octaves, similar

and contrary motion, compass four octaves, in quarter, eighth and sixteenth notes; triplet rhythms in quarter and eighth notes; metronome quarter note 120; tempo scales studied in metronome quarter note 120-130; major and minor chords in triad, and four-note form; dominant seventh and diminished seventh chords, four-note form, extended and broken with all inversions and in moderate tempo; arpeggios formed on the major and minor common chords, and be able to transpose easy hymns; sight read readily; to play from memory five compositions of the preceding grade in a satisfactory manner.

Required: Two lessons a week on piano; two lessons a week for thirty-six weeks in harmony and harmonic analysis; one lesson a week in counterpoint; practice with instrument three to five hours daily.

Prerequisite: Course 6 or its equivalent.

8. **Piano IV.** The technical tests in this course will be similar to those in the previous courses, except that the tempo will be increased, with additional study of unusual fingerings and chord formations. Exercises in scales in double thirds, and sixths in parallel motion will be required to be played in quarter and eighth notes; sight playing, transposing, and extemporaneous harmonizing melodies at the keyboard; students will be required to play at sight a composition equally as difficult as Beethoven's Sonata in A Flat, op. 26, and must be able to transpose and play at sight in any given key, a simple hymn or chorale. For graduation, students are required to perform publicly under the direction of the School of Music, playing a program not less than one hour in length, arranged by the instructor and approved by the Director, which shall include two or more numbers equal in difficulty to any composition in the list of senior pieces.

Following is the list of senior pieces, of which the student must play ten from memory: Wagner-Liszt—Tannhauser March; Chopin—Scherzo in B Minor, op. 31; Mendelssohn—Rondo Capriccioso, op. 14, Prelude and Fugue in A Minor; Variations Serieuses; Schumann—Kreisleriana, op. 16, Carnival, op. 9; MacDowell—Marzwind and Wald-Idyllen, op. 19, Nos. 1, 3, and 4; Weber—Polacca Brillante, op. 72, Fugue in A Minor—Bach, or his Italian Concerto; Suite in D—Handel; Caprice Espannol, op. 37—Moskowski; Concert Etude, op. 36—MacDowell; Ballade—Grieg; Liebstod (Tristan and Isolde)—

Liszt; Bach, Chromatic Fantasy and Fugue; Brahms, Ballade; Scherzo in E Flat Minor, op. 4. Beethoven Sonatas, op. 53 and 57. Chopin, Ballade in A Flat. Grieg, Ballade, Sonata in E Minor. Liszt, Hungarian Rhapsodies, Nos. 2 and 6. Mozart, Fantasia in C Minor, Sonata in F. Rubinstein, Staccato Etude. Concertos by Beethoven, Chopin, Henselt, Hummel, Liszt, MacDowell, Mendelssohn, Mozart, and Saint-Saens, or five others at teacher's option.

Required: Two lessons a week on piano; practice with instrument three to five hours daily; two lessons a week in composition.

To satisfactorily complete this course the student must fulfill the requirements above outlined and appear in programs when required by the Director.

9. **Theory.** The course in Theory will comprise systematic and progressive study in the elements of music. Consideration will be given to the theories of acoustics, to notation, scales, keys, modes, intervals, melodic progression, tempo, dynamics, rhythm and ear training. Advanced theory will embrace harmony, counterpoint, and subdivisions thereof, music history, concluding with form, composition and orchestration.

10. **Violin.** This course is preparatory and designed to develop correct fingering, free bowing, and accuracy as to pitch and rhythm. Appropriate studies by the following composers, or acceptable equivalents, are required for satisfactory performance before advancing to course 11:

Schubert, Dancla, DeBeriot, Pleyel duets, Dort, Hayser. Accurate playing of all major and minor scales is required; students must appear in public recitals when requested, playing from memory.

Required: Two lessons a week, harmony and music history as in course 5.

11. **Violin II.** Prerequisite, course 10. Studies by David Kayser, Schradieck, Kreutzer, or acceptable equivalents, for accuracy in playing all positions, and skill in scales and arpeggios at rapid tempos. Suitable solos, concertos, sonatas, etc., also ensemble playing at discretion of instructor. Students must appear in public recitals when requested, playing from memory. A certificate is granted upon satisfactory completion of this course.

Required: Two lessons a week, harmony, counterpoint and advanced music history as in course 6.

12. **Violin III.** This course comprises the most advanced studies by Fiorillo, Rode, Paganini, Bach, concertos and sonatas of the old and modern schools, solos by Vieuxtemps, Weiniawski, and other compositions of similar difficulty. Students must appear in public recitals when requested, playing from memory.

To graduate, the student must satisfactorily complete the above or its equivalent, complete Theory course 7 (as outlined for Piano III.) and give a public recital, playing from memory program not less than an hour in length, arranged by instructor and approved by Director.

BAND.

13. Instruction will be given by the regular College Band leader in the use of brass. wood, wind, and percussion instruments.

To become a member of the College Band a student must pass a satisfactory examination in the elements of music and ability to perform on his instrument.

Members are required to attend rehearsals each school day and a reasonable amount of individual practice is expected.

There is no charge for instruction in the band. Each member must furnish his own instrument and music stand, except basses, baritones, altos, and drums, which are furnished by the College.

Any student desiring to enter the band should see that his instrument is in low pitch.

The courses for the various band instruments are as follows:

Cornet—Methods by Arbou; characteristic studies by St. Jacome.

Clarinet—Methods by Dieppo; studies by Dieppo and Blume.

French Horn—Methods by Franz; studies by Franz and Hayffman.

In all other band instruments, including the oboe, bassoon, saxaphone, alto, and bass clarinets, drummers' traps, xylophone, and orchestra bells, the courses will be similar to those given above.

The work in theory required to complete these courses is similar and equivalent to that outlined for piano courses 5 and 6.

GENERAL INFORMATION.

Non-resident young women are required to live in Waldo Hall, where their conduct is subject to the approval of the Dean of Women. Outside rooming and boarding places may be obtained subject to the approval of the College authorities. The rates for board and room are reasonable and may be had upon application to the Dean of Women.

Lessons in all departments are of thirty minutes' duration.

Voices will be tested free of charge by appointment with the Director.

Pianos for practice will be available for students of the School of Music at reasonable rentals. These pianos will be of good quality and will be kept in good condition. Students of the School of Music not owning pianos will not be permitted to practice upon instruments outside of the School of Music unless by special arrangement with the Director.

This will always insure superior instruments for private use at regular periods. Students will be required to practice alone unless furnished with written permission from the Director.

Any injury to instruments, besides the normal wear and use in practice, must be paid for by the student or persons responsible therefor. Music will be furnished pupils through the School of Music or the local dealers at teachers' rates. Thus students will secure the necessary exercises, studies, songs and pieces at the lowest cost. In all but exceptional instances, music for use in the chorus and choir will be furnished free by the College. That students will be given every encouragement for thorough and economical study is obvious.

Recitals will be given every month, or oftener, by members of the faculty, or of various classes, at which every student of the School of Music is expected to be present.

The Glee and Mandolin Clubs and Orchestra give frequent public recitals and concerts, and each has at least one rehearsal a week. Information concerning membership in these organizations may be obtained by application to the Director.

Choir and Chorus Practice. Membership is free to students of the College, and open to talented singers not connected therewith by payment of a nominal fee at the College business office, and acceptance of qualifications and credentials by the Director.

It is the intention to conduct one chorus rehearsal each week.

Several concerts will be given during the year, in which oratorios, operas, or choruses will be sung. Whenever practicable, operas will be presented with appropriate costumes, action and scenery.

Applicants for instruction may take complete or partial courses. Those registering for the former are classified as "regular music," while the others are classified as "special music."

Any student in the Oregon Agricultural College may take at least one hour a day in music, if of satisfactory scholarship in his major course.

All students connecting themselves with the School of Music thereby agree to observe its rules and requirements.

No student is permitted to omit lessons or practice without sufficient excuse, and no refund will be made for absence from lessons or practice or for discontinuance, except in cases of severe illness; for such unavoidable absence, lessons may be made up only by appointment, and before the expiration of the term.

Lessons falling on legal holidays, or on special holidays petitioned for by the student body or by special student organizations, which may be granted by the College Council, will not be made up.

The school year consists of three terms of about twelve weeks each, beginning September 22.

Registration and incidental fee, $1.00 a term, payable in advance.

Tuition for instruction is as follows, payable in advance by the term, at the business office of the Financial Secretary. Less than twelve lessons will not be given except by special arrangement with the Director:

Voice.—Professor Gaskins. Private instruction.

Twelve lessons, one a week	$12.00
Twenty-four lessons, two a week	24.00
Thirty-six lessons, three a week	36.00

Voice, Piano.—Genevieve Baum-Gaskins. Private instruction.

Twelve lessons, one a week	$12.00
Twenty-four lessons, two a week	24.00
Thirty-six lessons, three a week	36.00

Organ.—Genevieve Baum-Gaskins. Private instruction.

Twelve lessons	$24.00
Twenty-four lessons	48.00
Thirty-six lessons	72.00

Piano.—May Babbitt-Ressler. Private instruction.

Twelve lessons, one a week	$12.00
Twenty-four lessons, two a week	24.00
Thirty-six lessons, three a week	36.00

Violin.—Instructor Bowden. Private instruction.

Twelve lessons, one a week	$10.00
Twenty-four lessons, two a week	20.00
Thirty-six lessons, three a week	30.00

Band Instruments.—Instructor Beard. Private instruction.

Twelve lessons, one a week	$ 9.00
Twenty-four lessons, two a week	18.00
Thirty-six lessons, three a week	27.00

Music History.

Two hours a week, a term	$3.00

Theory, Harmony, Counterpoint, Composition—In class instruction.

Two hours a week, a term	$10.00

Rentals.—Pianos and a pipe organ for practice will be furnished students of the School of Music at the following rates:

Piano—

Term of twelve weeks, one hour a day	$ 4.50
Two hours	7.50
Three hours	10.00
Four hours	12.50
Five hours	15.00

Organ—

Term of twelve weeks, one hour a day	$12.00
Two hours	21.00

The pipe organ is a new, modern Kimball two manual, concave pedal-board instrument of beautiful tone.

For additional information address, William Frederic Gaskins, Director, Administration Building, Oregon Agricultural College, Corvallis, Oregon.

WINTER SHORT COURSES.

Upon the farms and in the homes of this state are thousands of young people who are to become farmers, the gardeners, stockmen, orchardists, housekeepers, and home-makers of the future. To keep pace with the rapid development in the science, art, and practice of agriculture and home-making, and thus be enabled to attain the highest possible success, in these fields of endeavor, one should obtain as much special training as possible. Many of these young people, however, are so situated that it is impossible for them to attend any of the regular four-year courses in these subjects. There are also, no doubt, many mature farmers, and housewives, well past the usual school age, who desire to acquaint themselves more fully with the most recent developments in their respective lines of labor. To meet the demands of such persons, both young and old, various plans have been adopted in the several states, the most important of which are the Farmers' Institutes and the Winter Short Courses.

During the past fifteen years the Oregon Agricultural College has, each winter, offered a course of lectures and demonstrations which has been known as the Short Course in Agriculture. During the greater portion of that time there has also been offered each year a course in dairying for those who desire to obtain some knowledge of modern dairy and creamery methods. These courses have been soi generally successful and have called forth so many expressions of approval from those who attended them, that it has been decided to enlarge the scope of this work, and accordingly the College now offers the following eleven courses for the coming winter:

Agronomy, Animal Hnsbandry, Dairy Husbandry, Horticulture, Poultry Husbandry, Business Methods, Mechanic Arts, Domestic Science and Art, Forestry, Music, and "Farmers' Week."

Each of these courses, except the one in Mechanic Arts, which will consist entirely of practical work in the shops or in the draughting room, will consist of a series of lectures supplemented by demonstrations, and by practical exercises in the dairy, the orchard, and the various laboratories.

The work offered will be adapted to the practical needs of farmers, fruit-growers, dairymen, mechanics, or of women in the home. It is believed, also, that teachers who desire to prepare themselves to teach elementary agriculture, now required in our public schools, will find these courses decidedly helpful.

The various courses are so planned as to provide the largest amount of practical information in the short time available. The subjects to be discussed are those in which every farmer should be interested, and the aim will be to present them in the most practical manner possible. The laboratories and collections, the shops, the creamery, the orchards, the college farm, the cutting, fitting, and sewing rooms, the dining rooms and kitchens, all offer facilities for demonstration or for practical exercises by the students attending these courses.

Students should report to the deans of the various courses for registration and for assignment to the various classes. A list of boarding and lodging places may be consulted at the office of the Y. M. C. A.

No entrance examination or other educational test will be required; but no one will be received who is less than sixteen years of age. Over seven hundred men and women registered in these courses in 1910, their ages ranging from sixteen to over fifty.

There will be no fees whatever for attending the exercises of Farmers' Week. Those who attend the other courses will be expected to pay a registration fee of $1.00. In addition, students in the six-week course in Dairying will pay a laboratory fee of $2.00 and a breakage deposit of $3.00; those in Mechanic Arts will pay a fee of $2.00 for the course in blacksmithing and $2.00 for woodwork; those in Household Science and Art will pay a fee of $1.50 to cover cost of materials used in the course in cookery, and each student will be expected to furnish her own materials for all other classes. Board and lodging may be had in Corvallis at $4.00 to $5.00 per week.

A pleasing and profitable feature of these courses will be a series of lectures by some of the most prominent men in the State—men who are especially well qualified by successful experience to speak upon some particular phase of Agriculture.

"Farmers' Week." The exercises of Farmers' Week will begin Monday, February 5, and close Friday, February 9. They will be conducted somewhat upon the plan of an extended farmers' institute and will consist principally of lectures, supplemented by such demonstrations and practical exercises as are made possible by the equipment of the College and Experiment Station. The aim of the course will be to give to those in attendance the largest possible amount of information regarding the principles of successful agricultural and horticultural practices. The lectures and demonstrations by the various members of the faculty will be supplemented by one or more lectures each day by some of the most successful men of the State.

Are you interested in your own soil and its improvement, in the growth of clover, alfalfa, vetch, kale, and other crops; in better, more economical and more profitable feeding of dairy cows and other stock, or in their diseases? Do you wish to know how to bud and graft; how to pack your fruit successfully; how to distinguish the principal crop pests and how to control them; how to use the Babcock test? Are you interested in walnut growing? If so, be sure to attend this Farmers' Week. Bring your problems with you. Come prepared to ask questions and let all talk them over together. A large number of the most successful farmers in the State will be here. Be one of them! The railroads will be asked to give special rates, of which further announcements will be made.

All four-week courses begin Wednesday, January 3, 1912.

ANIMAL HUSBANDRY.

It is a recognized fact that animal husbandry is the cornerstone of successful farming. No other system of agriculture has yet been devised whereby the fertility of the soil may be permanently maintained. There are many farms in Oregon today where the yield is not half what it once was. The keeping of live stock is the only means by which the former productivity may be restored. There are thousands of other farms which are today producing enormous yields. The only way in which this productivity may be perpetuated is through the raising of live stock. The stock-raiser also caters to the most substantial market in the world. The last thing which the public denies itself is meat. Meat animals are always the same as cash. The prices vary, it is true, but not so much as in many other lines and live stock products can always be sold at a fair price. Other things may come and go, but year in and year out, century in and century out, there is no other kind of farmer who is as prosperous and substantial as the stockman.

Successful stock raising, however, requires a farmer of the best type. He must have intelligence and good judgment, and must have a knowledge of his business. It is with the hope of imparting to stockmen of the State a better knowledge of the business of stock raising that the short course in Animal Husbandry has been established. The work will be so arranged that it will be of benefit to anyone interested in stock, the old, experienced farmer as well as the young man just ready to start in the business.

Judging. The object of this course is to enable the student to recognize more accurately and more quickly the good and bad points of an animal and to make it possible for him to go into a herd or flock and pick out the best and know why.

The work is practical. The instructor explains the points considered in judging and wherein lies the difference between the good and the bad. The score card is explained and the class is required to score two or three animals, after which the scores are corrected by the instructor. All this is preliminary work, designed to give the student an idea of all the different points to be looked for and their relative importance. The students are then given a class of four or five animals to judge and are required to decide, each for himself, their relative merits. He must also estimate the weights. Individual members of the class then discuss their markings. Lastly the instructor gives his placing and explains the reasons. This work is repeated with different groups of animals until the subject is well in hand. Cattle, both beef and dairy, sheep, swine and horses are discussed.

Breeds. This course treats of the characteristics of the various breeds, their differences and adaptability to various purposes on the farm.

Breeding. This course discusses the theory of heredity and the various factors which influence reproduction. Such subjects as the control of sex, inbreeding, line breeding, grading, etc., are discussed.

Feeding. This course will consist of lectures and text book work on the feeding of live stock. First the general principles of nutrition will be discussed; what is meant by protein, carbohydrates, balanced ration and nutritive ratio. Then the feeding of the various classes of farm animals will be considered. Cattle, sheep, swine and horses will be studied, with especial reference to Oregon conditions. All the common feeds grown in the State will be discussed from the standpoint both of the experience of practical farmers and of the scientific investigation that has been carried on at the various experiment stations.

Veterinary Science. This course will embrace the common ailments of farm live stock, how they may be detected and treated, and above all how they may be prevented.

Not the least attractive feature of the Animal Husbandry short course will be the fine stock that will be at the College on exhibition and for use in the student judging classes. Last year there were brought in two carloads of fine stallions from A. C. Ruby of Portland and a car of Shorthorns and Southdowns from Frank Brown of Carlton. This year we expect to bring in a larger assortment, including some fine Berkshire and Poland China hogs, Hereford and Angus cattle, the very best that can be obtained in the State. The student is thus offered a rare opportunity for the study of fine animals at close range. He will not merely see this stock on exhibition and in the stall, but will have an opportunity to examine them critically for himself and hear the judgment and explanations of the instructors. In addition to the live sock brought in from the outside, all of the stock owned by the College will be used by the students. The College now has fine representatives of all the dairy breeds, Shorthorn cattle, Yorkshire and Berkshire swine, Cotswold and Shropshire sheep, Belgian, Percheron, Clydsdale and Standard-bred horses.

In addition to the courses outlined special lectures will be given upon phases of general livestock management by some of the leading stockmen of the State and members of the Agricultural faculty.

AGRONOMY.

The short course work given by the Department of Agronomy covers in a brief, practical way the subjects of Soils, Crops, Drainage, Farm Machinery, Farm Structures and Farm Management, subjects at the very foundation of all agricultural pursuits. These courses meet the requirements for the broad foundation knowledge on which all successful agriculture is built, and include special courses as well as the general work required by every farmer. Their arrangement is such that dairymen, orchardists or stockmen may take up such work as is related to their respective lines and that the great group of men who are carrying on general farming may find courses especially suited to their requirements.

The work in these courses will consist of lectures, readings, class room and field demonstrations, laboratory work, and is in every way of a thoroughly practical nature. The Agronomy Library, the Experiment Station Farm, and the three fine laboratories for the study of soils, crops and farm machinery offer exceptional facilities for pursuing studies along these lines. The expenses are nominal. The outlay for books is estimated at about three dollars.

Farm Soils. Successful agriculture in any line depends on a thorough understanding of soils. Soil structure, the movement and conservation of moisture, irrigation practices for the Willamette Valley, the relation existing between soil and heat, air and bacteria, methods and effects of cultivation and other topics are discussed. Practice is given in soil sampling and soil judging.

Soil Building. The treatment of run down farms, and paying crop rotations that build up the soil, will be discussed with reference to the needs of all kinds of farming in Oregon. The use of green manures, and the care and handling of barnyard manure will be coonsidered fully in improving soil fertiltiy. A study will be made of the good and bad features of each of the Oregon soil types, together with their crop adaptions and treatments.

Forage Crops. The seeding and management of pastures, the production and handling of hay, the culture and harvesting of soiling and silage crops, will be studied. Special attention will be given to breeding and improvement methods of these crops, seed testing, comparison of pasturing and soiling, soiling crop rotations, and to special crops such as alfalfa and kale.

Seed Crops. This course deals with the production of grains and seeds for feed and for seed. Improvement methods are discussed. The best methods for handling vetch, kale, clover, corn and small grains are taken up. Alfalfa seed, field pea, and seed potato production, are studied with reference to Eastern Oregon conditions.

Farm Machines. The construction and use of the best types of farm machines are discussed. The care and adjustment of tillage, seeding, grinding, harvesting and pumping machinery is considered fully. Power machines are studied in laboratory and class. Especial attention is given to the operation and care of gasoline and oil engines and to gasoline engine troubles.

Farm Structures. Practical work is given in the designing and drawing of plans with specifications and cost estimates for convenient and sanitary farm buildings of all kinds. Laboratory work is given in concrete work adapted to farm use, such as the construction of foundations, post making, laying of walks, etc.

Farm Management. Factors covering the choice of a farm, the laying out of the fields, the economic expenditures for buildings, machinery, stock, etc., field management and labor problems are discussed. Lectures will be given on markets and marketing, road efficiency and improvement, general farm sanitation and similar questions.

DAIRY HUSBANDRY.

The course in Dairying is designed to familiarize the student with the modern forms of dairy apparatus, and teach the underlying principles in the production, care, and manufacture of milk into butter and cheese. Both the how and the why will be the aim of the instructors, and it is the intention that the ideas set forth will be applicable to the farm dairy as well as the larger creamery or cheese factory.

Students will meet for work six days per week. The forenoon of each day will be mainly occupied in laboratory work in cream separation, buttermaking, milk testing, and cheesemaking. In the afternoon lectures and recitations will occupy the time.

The dairy herd consists of representatives of the leading dairy breeds, thus enabling the student to become familiar with the characteristics of dairy animals. A milking machine will be in operation at the dairy barn, and students will have an opportunity to become familiar with its use, as well as the methods of feeding, testing, and keeping the records of the dairy herd.

One of the largest commercial creameries in the State is located at Corvallis, an opportunity thus being afforded for the study of manufacturing problems as they exist under every-day creamery conditions. The following courses are offered:

Milk and Cream Testing. A study of the Babcock test as applied to milk and cream, and other milk products; the use of acidity test; fermentation tests; use of the lactometer; composite sampling and testing. Text book used, Testing Milk and Its Products, by Farrington and Woll.

Cheese Making. The manufacture of full cream Cheddar cheese will be considered. Attention will be given to the small sizes known as Young Americas. Some partly skimmed milk cheese will be made to illustrate the effect of the removal of a portion of the cream. The use of various rennet tests will be taught, also the hot iron and acidity tests. Small vats are used in this work in order that each student may have an opportunity to carry the work through from start to finish.

Creamery Buttermaking. A consideration of the use of starters, pasteurization as applied to butter making, methods of creamery contsruction, creamery mechanics, etc. Text book used, Creamery Buttermaking, by Michels.

Dairy Bacteriology. Four lectures per week will be given by the Department of Bacteriology to students in Dairying and to others interested. In these lectures the general principles of Bacteriology will be first discussed as a preparation for the consideration of the relation of the science to the dairy industry. A standard text book will be used by students for reference purposes.

Dairy Chemistry. The elementary principles of chemistry are explained with a view of enabling the student to understand better the compositon of dairy products and the chemical changes connected with and influencing certain dairy operations.

Laboratory Practice. Extended practice in the use of the Babcock test in determining the percentage of fat contained in milk and milk products; the use of acid test for determining the ripeness of cream.

Several latest style cream separators will furnish practice in the removal of cream from milk; various forms of apparatus for moulding butter will be used; the use of the pasteurizer and starter will also be considered.

Cheese making exercises will occupy the greater part of the day upon which such exercises are held.

Feeds and Feeding. (See courses in Animal Husbandry.)

Special Expenses.

General fee (for material used)	$2.00
Laboratory deposit (mostly returnable)	2.00
Books	5.00
White suit	1.50

The laboratory deposit is partly to cover value of lock, key, and glassware loaned the student, and will be refunded at the close of the term, less the value of the apparatus not returned. be offered the student to take work in the Departments of Agronomy, Animal Husbandry, and Commerce.

In addition to the work already outlined opportunity will be offered the student to take work in the Departments of Agronomy, Animal Husbandry, and Commerce.

HORTICULTURE.

The work offered in the Horticultural short course is designed to be of especial assistance to those interested in Orcharding, Truck Gardening, Floriculture, Nursery Practice and Landscape Gardening. While the work is highly specialized, it is at the same time of great value to the general farmer. In order to handle this work efficiently lecture rooms, laboratories, orchards, etc., have been provided. The laboratories are especially adapted for packing fruit, budding and grafting, study of plant diseases and insect pests.

The College has recently erected a floriculture building and modern range of greenhouses which will enable the College to offer strong courses in flower and vegetable forcing and plant propagation. In addition to the College orchards, there are in the immediate vicinity of Corvallis, extensive apple, pear, prune and peach plantings, and frequent excursions are made to these orchards for demonstration work.

The work is not only applicable to the coast regions and valleys of Western Oregon, such as Hood River, Willamette Valley, Umpqua Valley and Rogue River Valley, but also includes a study of horticulture as found in irrigated and semi-irrigated regions of Eastern Oregon, such as one finds at Hermiston, Freewater, Milton, the Grande Ronde Valley, and the table lands and inland valleys of Central Oregon.

Instruction will be given through lectures, laboratory exercises and field demonstrations. Those especially interested in horticulture will have abundant opportunity to have the time between eight in the morning and five at night fully taken up with subjects of vital interest to them. At the same time students in the horticultural course will be allowed to take work in other departments.

Commercial Orcharding. This course consists of a series of lectures, recitations and readings on the general principles of fruit growing, especially the culture of such fruits as apples, pears, and peaches. It will include such vital topics as how to choose an orchard, the relation of elevation and exposure to fruit growing, a study of the fruit soils, their cultivation, irrigation and upbuilding, thinning, pruning, frost and frost fighting, pollination, varieties and market conditions.

Small Fruits and Nut Culture. This course covers such fruit crops as strawberries, gooseberries, blackberries, loganberries, currants, grapes, as well as walnuts, almonds and filberts.

Orchard Practice. This course deals largely with the practical application, in orchards, of the principles of fruit growing discussed in the previous courses. Such topics of interest as pruning, staking of orchards, setting of trees, etc., are studied.

Apple Packing. Every wide awake, up to date fruit grower should be an expert apple packer. In order to meet the great demand in the state for fruit packers, the College has equipped a special laboratory, and has secured expert assistants to teach the grading and packing of the fruit. The students are taught to pack in the various packages such as are used throughout the Northwest, and to understand the strong and weak points of each pack.

Plant Propagation. This deals with the multiplication of plants by cuttings, layering, divisions, budding and grafting. The most practical methods of use to the every day horticulturist are taken up. Special stress is laid on nursery practice and walnut grafting.

Vegetable Gardening. This course takes up such problems as choice of soils, the use of fertilizers and compost, preparation of seed beds, cultivation, irrigation, blanching, various rotations and successions of crops and markets.

Landscape Gardening. This course takes up the principles of landscape gardening and their application to the farm home, school yard, church and village streets.

Vegetable and Flower Forcing. This course deals with the construction and management of forcing houses, heating and ventilation, choice of soils, the making of compost, and special culture of such crops as carnations, chrysanthemums, violets, lettuce, tomatoes, cucumbers, etc.

Plant Diseases. Daily lectures dealing with the principal fungus and bacterial diseases of horticultural crops. Every effort will be made to make this course of practical value to growers in the Northwest. Special attention will be given to the diseases of the apple, pear, peach and the cherry.

POULTRY KEEPING.

The Department of Poultry Husbandry offers a series of special lectures and demonstrations of practical value to all interested in the keeping of fowls. Following the lectures and during the last week of the course there will be held a poultry show, features of which will be: A display of live and dressed fowls representing different utility breeds; incubators, hatching coops and brooders, showing different methods of hatching and rearing chickens; a display of poultry foods and methods of feeding; a display of poultry keeping appliances. A special feature of the poultry show will be contests in judging, killing and dressing fowls by students, for which prizes will be awarded.

The course of lectures will be of a practical nature covering the following subjects: Breeds and breeding; planning and constructing a poultry plant; feeds and feeding; markets and marketing; preparing, killing, dressing and packing; incubation and brooding, both artificial and natural; and diseases and vermin affecting poultry.

Breeds and Breeding. Lectures upon these subjects will cover the selection of breeds for different conditions and purposes and a discussion of the comparative merits of different breeds. Methods of renewing the flock, one of the vital problems to poultrymen, will be discussed.

Location and Construction. Under this heading will be taken up subjects relating to location for poultry keeping and proper soil and climatic conditions. Under construction, such subjects will be discussed as type and size of house; methods of constructing different kinds of houses, hatching coops, brooders and appliances.

Feeds and Feeding. Lectures upon this subject will cover such subjects as: Comparative value of feeding stuffs; methods of feeding young and mature fowls; and feeding for egg and meat production. The results obtained from work done by different experiment stations will be discussed.

Markets and Marketing. The lectures on this subject will consist of a discussion of different market conditions; methods of marketing; and the formation of co-operative associations for the purpose of marketing the products and buying supplies.

Preparing, Killing, Dressing and Packing. Lectures will be given upon different methods of preparing or fattening fowls for market; different methods of killing and dressing; and the packing of the finished product with relation to different market conditions.

Incubation and Brooding. Lectures will be given upon different methods of incubation and brooding, both artificial and natural, and different methods as a factor in the growth and mortality of chicks will be compared. A number of different makes of incubators will be used for demonstration purposes. A study will be made of brooders ranging in capacity from fifty to a thousand chicks. A study will also be made of different methods of natural hatching and of coops used for this purpose.

Demonstrations and Practical Work. As far as possible the foregoing subjects will be supplemented by practical work and demonstrations. For this purpose the College poultry plant consisting of ten acres of land, several hundred birds of a number of different breeds, incubators, brooders, appliances, etc., will be used.

The above lectures and demonstrations will be open to all students taking the regular winter short courses. The hours for lectures will be arranged in order that such students as elect other courses of study may take this work. For those students desiring to make a specialty of poultry husbandry, a course will be outlined by consultation with the head of the department.

FORESTRY.

The Short Course in Forestry will consider those topics of special and general interest to rangers, fire wardens, and cruisers. Incidentally, however, subjects of great importance to timbermen, loggers, and millmen will be considered. The general aim will be to make a thoroughly practical course, and to this end a series of lectures, laboratory exercises, and field work will be given to cover the following phases of forestry.

Forest Measurement. (a) Demonstrations afield. Methods in common use; defects; how to estimate; grading standing timber; methods and estimating from logs, mining timbers, cordwood, bolts, etc.

(b) Valuation survey methods; construction of volume tables; scaling.

Surveying. Use of compass and chain; magnetic variations; surveying claims; closing, tying corners, meanders, and triangulation.

Mapping. Use of instruments; graphic representation, contour intervals, hachures, lettering, symbols, drawing to scale; special systems used by the national service in timber sales, agricultural settlements, boundary reports, etc.

Engineering. Use of level, laying out roads, trails, ditches; principles of bridge construction.

Law. Land, mining, live stock, water and fruit laws which affect national forest administration. Rules of practice before the land offices.

Policies. Why national or state forests; timber sales, grazing policies, duties of forest officers.

Methods. Regulations governing disposal of timber, range, land, rights of way; protection against fires, trespass and other injuries. Improvement work, fiscal matters, investigations, permits, reports, and general supervision.

Silviculture. The botany of the tree; silvicultural characteristics; tree requirements, soil, water, light, heat; reproduction after cutting, seedage; shiefly field work.

Geology. Common minerals, manner of occurrenec; lode and placer work; how to select ore samples; soil erosion; simple methods of determining the validity of coal and mineral claims.

General Lectures. Veterinary, horseshoeing, blacksmithing, packing, camp equipment, camp sanitation; first aid to the injured; tree diseases and pests; range problems; forage values; methods of handling sheep and cattle on the range; the lumber market and timber values. Conservation principles.

DOMESTIC SCIENCE AND ART.

Purpose of the Courses Offered. The purpose of the courses offered is the advancement of the art of home making by giving an opportunity to women, who cannot spare the usual time for school work but are interested in keeping in touch with the developments in home science and art, to enter classes in the several phases of domestic economy where old and tried methods still of value, are reviewed and new methods introduced.

Principles of Cookery. The classes in cooking will be instructed in the proper methods of preparing each class of foods, vegetables and fruits, including salads, meats and fish, flour mixtures, pastries and desserts of various kinds; attention will be given to good combinations with reference to proper proportions of food principles, palatability and attractiveness.

Cookery and Serving. Family meals and meals far special occasions such as dinners, luncheons, receptions and teas will be served by the classes. A brief study of the food required at various ages in health and ill health will be made, including the preparation of school lunches; an invalid tray and proper food for babies, children and the aged. This course will include lectures on subjects as the selection and care of dining room and kitchen furnishings, the laying of the table and dining room decorations.

Principles of Laundering. The principles of laundry work are taught through practical application. The subjects considered, illustrated by practical work are the treatment of hard water, choice of starch, bluing and soap, laundrying of bed and body linen, dresses, waists, collars and cuffs, flannels and table linen, removal of stains, cleaning of laces and colored embroideries.

Plain Sewing, Hand and Machine. This course is planned for those with little or no experience in sewing. The correct methods of sewing, handling and cutting materials, making of stitches, seams and finishing, also some simple embroidery, suitable for use in making table runners, doilies, trimming for dresses, will be taught. Attractive underwear and children's clothes will be made from bought patterns.

Dressmaking. This course is for women with experience in sewing and dressmaking. Patterns will be drafted for the various types of skirts, sleeves and waists. From these patterns each student will make at least one dress of cotton, wool or silk and as many more as time permits. The correct methods for cutting and fitting will be given and a study made of good color and material combinations.

Millinery. A course in millinery will be given if not less than six student elect it. The course will consist in the teaching of the construction of the hat itself, principles underlying choice and combination of materials, the making of bows and renovation of trimmings. Desire to enter this class should be made known to the dean of the school not later than December 20.

Fees.

Covering actual expense of materials used by each student:

Entrance	$1.00
Principles of Cookery	2.50
Cookery and Serving	3.50
Laundering	.50
Plain Sewing	.50
Dressmaking	.75
Millinery (deposit)	3.00

ENGINEERING AND MECHANIC ARTS.

It is the purpose to teach the subjects offered in a straightforward, practical manner which can be readily grasped and understood by farmers, mechanics and others who have only had the advantage of a common school education.

Woodworking. Considerable latitude will be allowed in choosing the particular line of work desired in this department as set forth under the following headings:

(a) A course for those not familiar with the care and handling of tools. This course affords istruction in the correct methods of using, sharpening and caring for the carpenter's bench and its equipment. The work is exemplified by exercises in planing, sawing, chiseling and the construction of useful articles of furniture. Some ateention is also given to making general repairs about the farm and home.

(b) **The Steel Square and Its Use.** This work includes laying out rafters, braces, stairs and other work with the steel square. Lectures will be given on the use of the steel square, after which the actual construction of work will be undertaken by the student.

(c) Those already familiar with the use of bench tools may obtain instruction in machine work, such as band-sawing, jig-sawing, wood-turning, the care and management of woodworking machinery.

(d) Instruction in the use of paints, stains and varnishes. This includes the mixing of paints both for interior and exterior work; estimates of cost of painting; mixing of stains and selection of materials. Also filling, shellacking, varnishing, polishing and finishing.

Each of these courses requires two hours of the student's time daily. More than one of the courses may be taken at the same time if desired.

Blacksmithing. This course is offered to those who desire to learn how to make simple repairs and improvements about the farm and shops. Instruction is given in building and managing a forge fire, bending, forging and welding iron, making and threading bolts and nuts, also making and tempering punches and cold chisels. The full course requires attendance during two consecutive hours daily.

COMMERCE.

To meet the demand for a short, practical, business course the work outlined below will be offered under the same conditions and entrance requirements as other winter courses.

Bookkeeping. This course will embrace the fundamental principles of double entry bookkeeping. It will be made strictly practical and only sufficient theory will be introduced to give the student a firm foundation for his work. The basis of the work will be a study of the modern general store, having introduced the latest labor-saving methods of bookkeeping and office practice.

Business Arithmetic. In connection with the course in bookkeeping the instructor will review the fundamental processes of business arithmetic for the benefit of those who need it.

Commercial Law. The course in commercial law will be given with the thought that there are certain fundamental principles of commercial law with which every one should be familiar, and will include the following important subjects:

Property, contracts, negotiable instruments, interest and usury, bailment, agency, partnership, and real estate.

Business Forms and Letter Writing. The purpose of this course will be to familiarize the student with the various forms used in general business practice. Exercises will be required illustrating both principle and practice in a clear, simple understandable manner. In the work on letter writing the correct form, wording, and general arrangement of the business letter will be taken up. Original letters, received from the most important manufacturing concerns and business houses of the United States will be studied.

Penmanship. The work in penmanship will embrace the study and practice of the best forms and style of practical business writing. The primary aim of the course will be to develop an easy, rapid, legible business hand.

Typewriting. The work in typewriting will be outlined to suit the requirements of the individual student. The beginner will be taught the correct method of fingering, the uses of the various parts of the machine, the care of the machine, manifolding, and the correct arrangement of the typewritten letter or form,

SPECIAL ANNOUNCEMENTS.

Talks on Books and Reading for the Farm Home. Three lectures on the following subjects will be given by the College Librarian during the Short Course: The kind of books and periodicals for the home library how to choose and how to buy. Government and state publications for the farmer, how to know and secure them. The Oregon Library Commission, what it can do for the farm home.

Instruction in Music. This school offers students the opportunity to acquire facility in the use of the singing voice, and to study the piano, violin, guitar, mandolin, banjo and all band instruments. The members of the faculty of the School of Music have received training in the best Eastern schools and of eminent specialists. All are artistic performers and each has had ample experience in teaching. All students have the privilege of advancing as rapidly as is consistent with creditable work, and may enter at any tlme by consultation and arrangement with the Director.

Domestic Science and Art. The following is a partial list of the subjects which will be treated by special lecturers: Food—its source, composition and purpose in the body. Combination of food for daily use. Keeping of food supplies. Meats—selection and care. Decoration and furnishing of a home. Materials used in sewing, their selection and combination. Social life on the farm. Home sanitation. Home hygiene.

Highway Construction. The economic importance of good roads is evident to all dwellers in rural communities. The Civil Engineering department will give a course covering this subject. Earth, gravel and broken stone roads will each be studied. Drainage and its importance to highway construction, including methods of drainage, carrying capacity of tile, manner of laying tile drains, determining proper grades for drains, etc., will be carefully studied. Methods of repair and maintenance will be given careful consideration. Every effort will be made to make this course practical and useful.

Economic Entomology. A course of 30 lectures and demonstrations on the principal insect pests and methods of control will be given by the force of the Department of Entomology.

For Your Information. The Oregon Agricultural College has 9 degree courses, 31 departments, 125 instructors and research assistants, 1778 students, a million and a quarter dollars in buildings, equipment and land, a campus of 240 acres, an ambition to make Oregon one of the most productive states in the union, a desire to equip Oregon's sons and daughters to accomplish that end and a determination to keep the College,as it is, one of the most efficient educational institutions in the Northwest.

Catalogue of Students.

(The following abbreviations are used to indicate the department in which the student is registered: Agri.—Agriculture; D. S.—Domestic Science and Art; C. E.—Civil Engineering; E. E.—Electrical Engineering; M. E.—Mechanical Engineering; Min.—Mining Engineering; Mech. Arts—Mechanic Arts; Com.—Commerce; Phar.—Pharmacy; For.—Forestry.

GRADUATES.

Name	Course.	Postoffice.	County.
LeRoy Breithaupt	Agri.	Clackamas	Clackamas
Frank Ross Brown	Agri.	Camas, Washington.	
Edward Cleveland Callaway	Phar.	Spokane, Washington.	
Fred Egerton Ewart	E. E.	Portland	Multnomah
Helen Margaret Gilkey	Agri.	Corvallis	Benton
Ann Laura Laura Hill-Griffin	Agri.	Canby	Clackamas
Frederic Llewelling Griffin	Agri.	Canby	Clackamas
Frances Houston	Com.	Kalispell, Montana.	
Paul Agnew Jones	C. E.	Ontario	Malheur
Esther Vestal Leech	D. S.	Grants Pass	Josephine
Ray Harland Roberts	Agri.	Lebanon	Linn
Floyd Elba Rowland	M. E.	Corvallis	Benton
C. Howard Schartow	Agri.	Detroit, Mich.	
Hari Singh	Agri.	Loyalpur, Distt., India	
John Montgomery Speidel	Agri.	Edmond, Oklahoma	

SENIORS.

Name.	Course.	Postoffice.	County.
James Quincy Adams	Agri.	Sheboygan, Wis.	
Challis Wm. Allen	Com.	Lostine	Wallowa
Charles Eric Armstrong	M. E.	Corvallis	Benton
Albert Allen Asbahr	Agri.	Hillsboro	Washington
Edward James Atckinson	Min.	Portland	Multnomah
Harold Harrison Barbur	For.	Portland	Multnomah
James Linwood Batchelder	Agri.	Hillsboro	Washington
Leslie Beaty	Agri.	Walkerton, Ind.	
Roy Borden	E. E.	Newport	Lincoln
Jennie Bossen	Com.	Langlois	Curry
Rolstyn Daniel Bridges	Com.	Cordova, Alaska.	
Edith Stanley Brogden	D. S.	Hillsboro	Washington
Earl Chase Brooks	M. E.	Tuscin, Ariz.	
Vernon Jordan Brown	Phar.	Corvallis	Benton
Harry Palmer Cady	E. E.	Holbrook, Neb.	

Name.	Course.	Postoffice.	County.
Merlin Taylor Calef	C. E.	Portland	Multnomah
William Robert Carlson	C. E.	Milwaukie	Clackamas
John Darwin Carnegie	E. E.	Albany	Linn
George Elmer Chapman	Com.	Fossil	Wheeler
Isaac Ray Chapman	Phar.	Fossil	Wheeler
Charles Despain	E. E.	Pendleton	Umatilla
Walter Wilbur duMoulin	E. E.	Corvallis	Benton
Clifford Arron Dunn	Min.	Cloverdale	Tillamook
William Connell Dyer	C. E.	Salem	Marion
Clarence Herbert Eagy	Com.	Albany	Linn
Howard James Eberly	For.	N. Yakima, Wash.	
Belle Bertie Edwards	D. S.	Monroe	Benton
Otto Herman Elmer	Agri.	Mulino	Clackamas
John Oscar Enberg	Min.	Baker City	Baker
Hortense Eppley	D. S.	Salem	Marion
Jackson Kenelm Fairchild	E. E.	Portland	Multnomah
Charles Augustus French	E. E.	Corvallis	Benton
Viola Gardner	Com.	Corvallis	Benton
Bess Carmen Garrett	Phar.	Ashland	Jackson
Albert Porter Gibson	E. E.	Ontario	Malheur
Herbert Jas. Gilkey	C. E.	Grants Pass	Josephine
Ray Fred Ginther	Phar.	Corvallis	Benton
James Wm. Graham	M. E.	Gardiner	Douglas
Frederick Benhart Gross	M. E.	Athena	Umatilla
Lorain Walter Haller	E. E.	Corvallis	Benton
Orlando B. Hardy	Agri.	Portland	Multnomah
George Lyle Harper	C. E.	Grants Pass	Josephine
Lee Marion Harris	E. E.	Vale	Malheur
Willamette Harris	Agri.	Oregon City	Clackamas
Chas. Hartsock	M. E.	Albany	Linn
Vera Etta Haskell	D. S.	Port Orchard, Wash.	
Wm. Dexter Haskell	M. E.	Port Orchard, Wash.	
Bird Norman Hawley	Agri.	Star	Lane
Philo Benjamin Hawley	Agri.	Cottage Grove	Lane
Homer Harry Hayes	Com.	Joseph	Wallowa
William Melville Herren	M. E.	Portland	Multnomah
LeRoy Vernon Hicks	E. E.	Ashland	Jackson
Claude Elgin Howard	Com.	Bridal Veil	Multnomah
Chester Carl Howe	Min.	Hillyard, Wash.	
Zoa Irwin	D. S.	Corvallis	Benton
Clarence L. Jamison	Min.	Iditarod, Alaska.	
Anders Marinus Jeppesen	M. E.	Bacona	Washington
Alfin Johnson	C. E.	Seaside	Clatsop
Alva Walter Jones	Com.	Heppner	Morrow
Glenn Curtis Jones	Com.	Heppner	Morrow
Walter McHewell Keck	C. E.	Hammond	Clatsop
Lawrence Keene	Min.	Salem	Marion
Pandurang Khankhoje	Agri.	Wardha, India.	
Angie Charlotte Kyle	Com.	Monroe	Benton

Name.	Course.	Postoffice.	County.
Albert F. J. Lafky	Agri	Salem	Marion
Horace Richard Landfare	Min	Portland	Multnomah
Ielleen Allanna Leech	D. S.	Grants Pass	Josephine
Edward Rudolph Leibner	Com	Albany	Linn
Erwin Bertran Lemon	Com	Grass Valley	Sherman
Harry Arthur Lindgren	Agri	Melrose	Douglas
Raymond Stewart Loosley	Agri	Ft. Klamath	Klamath
Fern Gladys Loughridge	Com	Hedrick, Iowa.	
James Rhea Luper	C. E.	Heppner	Morrow
Joseph Linzy McAllister	C. E.	Yamhill	Yamhill
Melville Thomas McAllister	C. E.	Yamhill	Yamhill
Margaret McCall	D. S.	Scio	Linn
Forrest Wm. McGinnis	Agri	Corvallis	Benton
Iva Belle McGinnis	Com	Corvallis	Benton
Howard Elmer McLean	E. E.	Wallowa	Wallowa
Lenora Makelim	D. S.	Portland	Multnomah
Claude Alva Mattson	C. E.	Astoria	Clatsop
Cecil Elam Metcalf	Min	Portland	Multnomah
Zoe Velma Miller	Phar	Amity	Yamhill
Henry Clay Montgomery	C. E.	Bridal Veil	Multnomah
Emmett B. Moore	Com	Corvallis	Benton
Charles Leroy Nelson	M. E.	Scappoose	Columbia
Ira Edward Newsom	Phar	Portland	Multnomah
Marion Arthur Nickerson	C. E.	Marcola	Lane
Adolph Nilsson	For	Portland	Multnomah
Gertrude Frances Nolan	Com	Corvallis	Benton
Arthur O'Connor	C. E.	Montague, Calif.	
Benhard Olsen	E. E.	Milwaukie	Clackamas
Earle Arney Olsen	Com	Warrenton	Clatsop
Rubie Irene Olsen	D. S.	Corvallis	Benton
Lawrence Wm. Park	M. E.	Corvallis	Benton
Henry John Pfandhoefer	E. E.	Falls City	Polk
Carrie Maude Pimm	D. S.	Philomath	Benton
Phillip Ray Poff	C. E.	The Dalles	Wasco
Minnie Price	D. S.	Kings Valley	Benton
Elta Marie Raber	D. S.	Corvallis	Benton
Helen Raber	D. S.	Corvallis	Benton
Alvin Lester Raines	C. E.	Larone	Linn
Wm. Fritz Raithel	For	Santa Barbara, Calif.	
George Rieben	Agri	Banks	Washington
Mrs. Lillie B. Riggs	Com	Vancouver, Wash.	
LeRoy Comstock Rulifson	C. E.	Salem	Marion
Lawrence George Russell	C. E.	Corvallis	Benton
Ruth Winnifred Scovill	Phar	Grants Pass	Josephine
Alice Gertrude Shepard	D. S.	Roosevelt, Wash.	
Holly Henty Siemons	M. E.	Klamath Falls	Klamath
Earl Jackson Silva	E. E.	Rainier	Columbia
Neil L. Simons	Min	Portland	Multnomah
Maurice Edgar Smead	Com	Heppner	Morrow

Name.	Course.	Postoffice.	County.
Genevieve Lucile Smith	D. S.	Corvallis	Benton
Ruth McNary Smith	D. S.	Marshfield	Coos
Roy Herbert Sprague	M. E.	Corvallis	Benton
Ruby Irene Starr	D. S.	Corvallis	Benton
Charles Ernest Stricklin	C. E.	Olex	Gilliam
Fred Jacob Stutz	C. E.	Redwood City, Calif.	
John Wyatt Surry	Agri.	Lyons	Linn
Laurence Edgar Swan	C. E.	LaCrosse, Wis.	
William Everett Taylor	M. E.	Oregon City	Clackamas
Charles Claude Thompson	Agri.	Hood River	Hood River
William Jeptha Thornton	Phar.	Roseburg	Douglas
Carl Clifton Titus	M. E.	Kingston	Linn
Fred Venard Tooley	Agri.	Portland	Multnomah
Benjamin B. Totten	For.	Corvallis	Benton
Stanley Everett Tripp	Min.	Hood River	Hood River
Nathan Daniel Vail	Agri.	Stillwater, Oklahoma.	
Harold Edward Wahlberg	Agri.	Lents	Multnomah
Ora Weaver	Com.	Myrtle Creek	Douglas
Raymond Ustick Williams	Agri.	Denver, Colo.	
Mabel Gertrude Williamson	D. S.	Wells	Benton
Earl Withycombe	C. E.	Corvallis	Benton
Carl Wolff	M. E.	Portland	Multnomah
Joseph B. Yoder	M. E.	Hubbard	Marion
Dorris Shelby Young	Agri.	Sherwood	Clackamas

JUNIORS.

Name.	Course.	Postoffice.	County.
Isabella Vivian Ackerman	D. S.	Salem	Marion
Carl Nathaniel Anderson	M. E.	Portland	Multnomah
Roy Julius Anderson	E. E.	Tillamook	Tillamook
Wilbur DeWitt Andrews	M. E.	Oregon City	Clackamas
Hugh Barkley Antrim	C. E.	Amity	Yamhill
Samuel Hubbell Arbuthnot	Agri.	Corvallis	Benton
Wm. Anthony Armstrong	M. E.	Corvallis	Benton
Margaret Mary Asbahr	D. S.	Cornelius	Washington
Rae Margaret Atherton	D. S.	Dayton, Wash.	
Alice Bateman	D. S.	Gale Creek	Washington
Nora Emma Beebe	D. S.	Central Point	Jackson
Harry Belknap	E. E.	Corvallis	Benton
Sidney H. Boddinghouse	Agri.	Wilmette, Ill.	
James Chas. Bonner	Agri.	Corvallis	Benton
Sadie Bonner	D. S.	Corvallis	Benton
Frank Henry Boulan	Agri.	Portland	Multnomah
Fred Grant Brown	C. E.	Crystal	Klamath
John Townsend Burch	C. E.	Rickreall	Polk
Allen Burdick	M. E.	Portland	Multnomah
Homer Maxwell Carnes	Agri.	North Powder	Union
Glover Carroll	Agri.	Portland	Multnomah

Name.	Course.	Postoffice.	County.
Walter Guy Carson	C. E.	Irrigon	Morrow
Ray Winton Castle	C. E.	Echo	Umatilla
James Marion Caughell	C. E.	Gold Beach	Curry
Chester Wm. Chambers	Com.	Kings Valley	Benton
William Clark	Agri.	Hood River	Hood River
Frank Wm. Clyne	Agri.	Los Angeles, Calif.	
Reid C. Cochran	Com.	Corvallis	Benton
Wm. Ben Cochran	Agri.	Monument	Grant
Robert A. Cook	Agri.	Redmond	Crook
Benjamin Harrison Cooper	Agri.	Corvallis	Benton
Godfrey Vernon Copson	Agri.	Deadwood, S. D.	
Ruth Lillyn Corbett	D. S.	Corvallis	Benton
Kern Lee Davis	D. S.	Portland	Multnomah
Robt. Clyde Day	E. E.	La Grande	Union
Ellis Samuel Dement	Agri.	Myrtle Point	Coos
Adella Davenport	D. S.	Corvallis	Benton
Luther Andy Duckworth	Min.	Sumpter	Baker
Caryl Edwards	D. S.	Monroe	Benton
Albert Frederick Eschricht	Min.	Portland	Multnomah
Bradford Fowles	E. E.	Mountaindale	Wash.
Mabel Gardner	D. S.	Corvallis	Benton
Vincent Paul Gianella	Min.	Honcut, Calif.	
Vane Garfield Gibson	Agri.	Jamestown, Ind.	
Ira Emmond Gillett	Com.	Albany	Linn
Elmer Ellsworth Goshorn	C. E.	Portland	Multnomah
Jay P. Green	Agri.	Twin Falls, Idaho.	
John Delbert Griffin	Agri.	Astoria	Clatsop
Kenneth Burton Grimm	C. E.	Hubbard	Marion
Jas. Harrison Haight	E. E.	Ashland	Jackson
Ford Alger Hand	Phar.	McMinnville	Yamhill
Edna Marie Harris	Phar.	St. Helens	Columbia
Earl Wm. Heckert	M. E.	Corvallis	Benton
Chas. Clarence Heid	Agri.	Portland	Multnomah
Edgar Carl Hexter	Agri.	Portland	Multnomah
Geo. Prentice Hicinbothom	C. E.	Oregon City	Clackamas
Chas. Kennedy Hubbard	C. E.	Dundee	Yamhill
Charlotte B. Huff	D. S.	Portland	Multnomah
Mabel Florence Huff	D. S.	Corvallis	Benton
McKinley Huntington	Agri.	Yoncalla	Douglas
Leo Edwin Jonhson	M. E.	Carlton	Yamhill
Jane Agnes Johnston	D. S.	Corvallis	Benton
Leona Kerr	D. S.	Corvallis	Benton
Earl Victor Knapp	Com.	Camas, Washington.	
Lizzie Koeber	D. S.	Sherwood	Washington
Morris Koon	Agri.	Junction	Lane
Chester DeBolt Lafferty	Com.	Corvallis	Benton
Mark Gustave Lafky	Agri.	Salem	Marion
Alice Carrie Leedy	D. S.	Sherwood	Washington
Jay Clark Leedy	Agri.	Sherwood	Washington

Name.	Course.	Postoffice.	County.
Clyde Clayton Levan	Min.	Portland	Multnomah
Gertrude Estelle Lilly	Phar.	Corvallis	Benton
Alfred Gunn Lunn	Agri.	Camden, N. J.	
Wm. Henry McDaniel	M. E.	Portland	Multnomah
Shamus O'Brian McFadden	Com.	Corvallis	Benton
Elmer Milton McMannus	Phar.	Burns	Harney
Fred Orville McMillen	E. E.	Salem	Marion
James B. Mann	M. E.	Portland	Multnomah
Carl Henry Manock	Phar.	Corvallis	Benton
Fred A. Miller	M. E.	Portland	Multnomah
Roger Quarles Mills	Agri.	Portland	Multnomah
John Rowland Mires	Min.	Ellensburg, Wash.	
Frances Willard Mitchell	D. S.	Corvallis	Benton
Barbara Aline Moore	D. S.	Bloomington, Ill.	
Christie Moore	D. S.	Bloomington, Ill.	
Otto Nelson Moore	C. E.	Montesano, Wash.	
Ira Monroe Morgan	Agri.	Ione	Morrow
Geo. Willis Morris	E. E.	Corvallis	Benton
Walter Edmund Morris	Com.	Corvallis	Benton
Ivan Emanuel Nelson	E. E.	Ione	Morrow
Herbert Ray Olson	E. E.	Portland	Multnomah
Wells Oviatt	E. E.	Corvallis	Benton
Leslie Loren Palmer	Agri.	Central Point	Jackson
Glenn Stuart Paxson	Min.	Newberg	Yamhill
Knight Peary	Agri.	Portland	Multnomah
Alice Petra Pimm	D. S.	Philomath	Benton
Olivia Pohland	D. S.	Ashland	Jackson
Lester Denzil Porter	Com.	Corvallis	Benton
Herman Lair Prather	M. E.	Buena Vista	Polk
Lawrence Aubrey Prescott	Phar.	Corvallis	Benton
Clifford Leland Reed	Phar.	Burns	Harney
Ernest Graham Rice	Min.	Portland	Multnomah
Ruby Ailene Rice	D. S.	Corvallis	Benton
Harrison Morton Roberts	Com.	Eugene	Lane
Clark Edwards Schultz	Agri.	Dundee, Ill.	
Charles E. Sitton	Agri.	Carlton	Yamhill
Otto D. Sitton	Agri.	Carlton	Yamhill
Chester Lyman Smith	E. E.	Springfield	Lane
Hiram Chester Smith	C. E.	Newberg	Yamhill
Hugh Isaac Smith	E. E.	Marshfield	Coos
Robt. Lawrence Smith	M. E.	Portland	Multnomah
Florence LaRue Starbird	D. S.	Portland	Multnomah
George Thomas Startzoff	Agri.	Sitka, Alaska.	
Arthur V. Swartout	Com.	Pinckney, Mich.	
Nell Sykes	D. S.	Salem	Marion
Charles Robertson Thomson	E. E.	Portland	Multnomah
Genevieve Tillery	D. S.	Independence	Polk
Jennie Olympia Totten	D. S.	Corvallis	Benton
Loy Monroe Turner	C. E.	Heppner	Morrow

Name.	Course.	Postoffice.	County.
William Roy Varner	C. E.	Enterprise	Wallowa
Alfred Edmund Volk	Agri.	Junction	Lane
Otto George Voss	M. E.	Astoria	Clatsop
Paul Theodore Wagner	Agri.	Portland	Multnomah
Clara Ellice Wallan	D. S.	Adams	Umatilla
Gustav Peter Wanstrom	Agri.	Mist	Columbia
Paul Raleigh Watson	C. E.	Battle Ground, Wash.	
Louis Emil Wiegel	Min.	Indianapolis, Ind.	
Vera Marie Wilder	D. S.	Lyle, Minn.	
Mary Aletha Wilson	D. S.	Corvallis	Benton
Basil Witzig	M. E.	Corvallis	Benton
Maynard Andrew Young	Agri.	Portland	Multnomah

SOPHOMORES.

Name.	Course.	Postoffice.	County.
Roy Ware Alspaugh	Agri.	Barton	Clackamas
Isaac Milton Anderson	Agri.	Van	Harney
John Walter Asplund	E. E.	Marshfield	Coos
Maida Estella Beals	Phar.	Drain	Douglas
Walter Boone Beasley	E. E.	Hermiston	Umatilla
Leon Myer Bernstein	Agri.	Portland	Multnomah
Ralph Abel Blanchard	Agri.	Chicago, Ill.	
Gordon George Brown	Agri.	Corvallis	Benton
Robert Walton Brown	Com.	Drewsey	Harney
William Hiram Brown	Agri.	Portville, N. Y.	
Elizabeth Buchanan	D. S.	Corvallis	Benton
Bert Charles Burdick	Phar.	Portland	Multnomah
Malich Earl Canfield	Com.	Albany	Linn
Alvin Lloyd Carnegie	Com.	Albany	Linn
Myrtle Cartwright	Com.	Junction	Lane
Alice Marie Cathey	D. S.	Corvallis	Benton
Earl Charles Chandler	Agri.	Sheridan	Yamhill
Joe Chernis	C. E.	Portland	Multnomah
Helen Clarke	D. S.	Grants Pass	Josephine
Leeser Raphael Solis Cohen	E. E.	Portland	Multnomah
Jack Chandler Cook	E. E.	Portland	Multnomah
Harry Clifford Cooper	Phar.	Corvallis	Benton
John Edward Cooter	Agri.	Cottage Grove	Lane
Berthel Claude Copple	Agri.	Corvallis	Benton
Helen Julia Cowgill	D. S.	Baker City	Baker
Lucy Adelle Crawford	D. S.	Ashland	Jackson
Guy D. Cronemiller	E. E.	Lakeview	Lake
Rowley Cruit	Min.	Wellen	Jackson
Ernest Walton Curtis	Agri.	Claremont, Calif.	
Wilbert Luther Davis	Com.	Portland	Multnomah
Harold Karl Dean	Agri.	Baker City	Baker
Lila Grace Dobell	D. S.	Corvallis	Benton
Margaret Dunbar	D. S.	Ontario	Malheur

Name.	Course.	Postoffice.	County.
Ralph Eli Duncan	Com.	Portland	Multnomah
William Henry Dunham	Agri.	Portland	Multnomah
Walt. L. Dutton	For.	Lakeview	Lake
Ruby Ethel Earhart	Com.	Independence	Polk
Hazel Edwards	D. S.	Corvallis	Benton
Blaine Ferguson	Agri.	Hailey, Idaho.	
JohnMorton Franklin	Agri.	Seattle, Wash.	
Frank Yoshitaro Fujihira	E. E.	Portland	Multnomah
Bertha Gilliland	Com.	Fossil	Wheeler
Joseph Homer Hallock	E. E.	Portland	Multnomah
Harold Everet Hamaker	Phar.	Bonanza	Klamath
Frank M. Harrington	Agri.	Creswell	Lane
Clara Levena Hartzog	D. S.	Lakeview	Lake
Grace Hawley	D. S.	Corvallis	Benton
Carl Victor Hersey	C. E.	Portland	Multnomah
Geo. Fred Hess	E. E.	Corvallis	Benton
Harry C. Hetzel	Agri.	Madison, Wis.	
David Broks Hogan	Agri.	Arleta	Multnomah
John Ernest Jackson	Phar.	Looking Glass	Douglas
Frederick Carl Jernstedt	M. E.	Carlton	Yamhill
Anna Marie Johnson	D. S.	Albany	Linn
Ramona Kane	Phar.	Oakland, Calif.	
Moichi Kawashima	Agri.	Tokyo, Japan.	
Glenn Curtis Kelly	Agri.	Portland	Multnomah
Minerva Kiger	D. S.	Corvallis	Benton
Leonard Humphrey Kistler	E. E.	Portland	Multnomah
Walter Winnifred Larsen	C. E.	Laurel	Washington
Otto Karl Laue	Phar.	Portland	Multnomah
Nelson Eddie Likins	M. E.	Portland	Multnomah
Ernest Penn McDaniel	E. E.	Portland	Multnomah
Joseph Gordon McKay	Phar.	Portland	Multnomah
Robert Tandy McKee	M. E.	Lakeview	Lake
LeRoy Roderick McKenzie	Com.	Summerville	Union
Robert Roderick McKenzie	E. E.	Lostine	Wallowa
Benjamin Henry McNamee	C. E.	Portland	Multnomah
Donald Mayne MacClaire	Phar.	Portland	Multnomah
Lloyd Harry Magill	Phar.	Springfield	Lane
Alfred Edwin Maneely	E. E.	Corvallis	Benton
Chester A. Mansfield	Agri.	Portland	Multnomah
Virginia Mescher	Com.	Silverton	Marion
Watson Boone Miles	Com.	Lostine	Wallowa
Cass Edward Montague	C. E.	Arlington	Gilliam
Charles Bruce Montague	Com.	Portland	Multnomah
Erwin James Montague	Com.	Arlington	Gilliam
George Millage Montgomery	Agri.	Alhambra. Calif.	
Margaret Chadsey Morehouse	D. S.	Eugene	Lane
Leslie Ralph Morgan	Agri.	Arlita	Multnomah
Alice Mary Murphy	D. S.	Monmouth	Polk
Geo. Furman Neefus	Min.	Portland	Multnomah

Name.	Course.	Postoffice.	County.
Kakuji Okomoto	Agri.	Portland	Multnomah
Otis Larrabee Patterson	C. E.	Canyon	Grant
Earl Nathaniel Pearcy	Agri.	Portland	Multnomah
Pauline Mary Pease	D. S.	Woodstock	Marion
Harold Morris Peery	Phar.	Springfield	Lane
Desire Joseph Perard	Phar.	Toppenish, Wash.	
Edgar Turner Pierce	Com.	Harrisburg	Linn
Edmond Clarke Potter	E. E.	Portland	Multnomah
Delia Purves	D. S.	Seattle, Wash.	
Gordon Rasmussen	Com.	Marshfield	Coos
Lance Read	E. E.	Portland	Multnomah
Leo W. Reber	Com.	Portland	Multnomah
Orvill Green Reeves	M. E.	Pendleton	Umatilla
Charles Henry Reynolds	Phar.	La Grande	Union
S. Whitley Richardson	Min.	Salem	Marion
Enid Cryichlow Robertson	Agri.	St. Johns	Multnomah
Louis Sawyer	Agri.	Corvallis	Benton
Robert Schulz	C. E.	Vancouver, Wash.	
Ivan Harrison Severance	M. E.	Hardman	Morrow
Guy Adelber Shadduck	For.	Corvallis	Benton
Homer Harrison Shake	E. E.	Payette, Idaho.	
Rose Mae Sheridan	D. S.	Tangent	Linn
Willis Sherman Sibray	Com.	Portland	Multnomah
Francis Willard Smith	C. E.	Portland	Multnomah
Amber Bessie Spaulding	D. S.	Albany	Linn
Julius Spees	E. E.	Oregon City	Clackamas
Odith Kenilworth Spurrier	M. E.	Portland	Multnomah
Dorathea Emily Steusloff	D. S.	Salem	Marion
Reuben Leonard Stoneberg	Com.	Coberg	Lane
Alpheus Roscoe Tartar	Com.	Corvallis	Benton
Harry Mark Teel	C. E.	Echo	Umatilla
Gilbert Thayer	E. E.	Portland	Multnomah
Royal Burleigh Thompson	Agri.	Portland	Multnomah
Harold Sale Turlay	For.	Astoria	Clatsop
Lester Delayon Tycer	E. E.	Brownsville	Linn
Emma Matilda Ueland	D. S.	Roseburg	Douglas
George Urquhart	For.	Moro	Sherman
John Lester Vail	E. E.	Corvallis	Benton
Frank Wilson Wait	Com.	Medford	Jackson
Grace Eugene Wallace	Com.	Independence	Polk
Gertrude La Vern Walling	Com.	Salem	Marion
Fred Merle Weatherford	Com.	Olex	Gilliam
Edward Jasper Weber	Agri.	Creswell	Lane
Emily Gyneth Wells	D. S.	Ashland	Jackson
Foster Pratt Wentz	C. E.	Portland	Multnomah
Inez Belle White	D. S.	Cottage Grove	Lane
William Henry Whiteley	C. E.	St. Johns, Newfoundla'd	
Clyde Whittemore	D. S.	Tillamook	Tillamook
Arthur James Wilson	Com.	Albany	Linn

Name.	Course.	Postoffice.	County.
James Harold Wilson	Agri.	Gresham	Multnomah
Everett Stanton Wisdom	Agri.	Corvallis	Benton

FRESHMEN.

Name.	Course.	Postoffice.	County.
Joel Harlow Abshier	Min.	Eugene	Lane
Harold Richard Adams	C. E.	Myrtle Point	Coos
Homer Ferris Aker	Agri.	Corvallis	Benton
Leonard John Allen	Agri.	Cove	Union
Helen Rae Allworth	D. S.	Battle Ground, Wash.	
Allan Kindall Andrews	C. E.	Medford	Jackson
Walter Edward Anthony	C. E.	San Francisco, Calif.	
William R. Axe	Agri.	Prairie	Grant
Harold Sidney Babb	E. E.	Portland	Multnomah
John Oscar Baker	E. E.	Portland	Multnomah
Mylo Bartu	M. E.	Crabtree	Linn
Ramona Gladys Baum	D. S.	Corvallis	Benton
Robert Wendell Bell	C. E.	Roseburg	Douglas
Ralph Silsby Blackden	For.	Ashland	Jackson
Ray B. Boals	M. E.	Dallas	Polk
Joe Miles Booth	Agri.	Cove	Union
Floyd Owen Bristow	Agri.	Monroe	Benton
Lyn Arthur Brown	Com.	Brownsville	Linn
Samuel Ray Brown	Agri.	Laidlaw	Crook
Austin Balderree Brownell	C. E.	Gardiner	Douglas
Earl Grauton Brownlee	Agri.	Portland	Multnomah
Herschel Glen Bunn	Phar.	Yamhill	Yamhill
Virgil Lee Calavan	Phar.	Corvallis	Benton
Luella Campbell	D. S.	Medford	Jackson
Douglas Bryant Chapin	C. E.	New York, N. Y.	
Charles Lloyd Chapman	Min.	Sheridan	Yamhill
Ralph Garfield Chenault	Agri.	LaGrande	Union
William Edwards Clarke	For.	Newberne, N. C.	
Huran Willoughby Clough	C. E.	Canyonville	Douglas
Philip B. Cohen	Agri.	Smiela, Russia.	
Frances Caroline Cook	D. S.	Shaniko	Wasco
Mortimer Parker Cook	Agri.	Portland	Multnomah
Ralph Oscar Cook	Phar.	Newberg	Yamhill
Ray Max Cooley	Agri.	Chico	Curry
Charles Campbell Cottel	For.	Portland	Multnomah
Spencer Albert Covell	M. E.	Corvallis	Benton
Lynn Cronemiller	For.	Lakeview	Lake
Arthur Edwards Cummings	Agri.	Salem	Marion
Lewis Richard Dean	Phar.	Days Creek	Douglas
Charles Robert Dear	Agri.	Oakland	Douglas
Chester Allen Dickey	Com.	Molalla	Clackamas
Grace May Dinges	D. S.	Corvallis	Benton
William Harry Dinges	Phar.	Corvallis	Benton

Name.	Course.	Postoffice.	County.
Cid Ira Doolittle	E. E.	Corvallis	Benton
Dallas Whitemore Dupuis	Agri.	Nolin	Umatilla
Cleon Burtan Durdall	E. E.	Vancouver, Wash.	
Benjamin A. Eddy	C. E.	Oakland	Douglas
Delmer Eddy	Com.	Kings Valley	Benton
Jessie Boyd Edington	C. E.	Helix	Umatilla
Connor Whealdon Edwards	Agri.	Monroe	Benton
Lee Earl Emery	For.	Corvallis	Benton
Elmer Feldenheimer	Com.	Portland	Multnomah
Frank Fiedler	C. E.	Bellingham, Wash.	
Boyd Fisher	Com.	Portland	Multnomah
Harry Louis Fischer	Com.	Silverton	Marion
Fritz William Fleishman	C. E.	Canyon City	Grant
John Franklin Forbis	Agri.	Portland	Multnomah
Harold Darwin Foster	Agri.	Seattle, Wash.	
Will Herman Foster	E. E.	Corvallis	Benton
Paul E. Freydig	For.	Sutherlin	Douglas
Alan Clyde Fulton	M. E.	Astoria	Clatsop
Eric Julian Gambee	Phar.	Portland	Multnomah
Ella Gamble	Com.	Astoria	Clatsop
William Gardiner	Agri.	Colorado Springs, Colo.	
Lawrence Marion Gerdes	Phar.	Hood River	Hood River
Fred F. Glen	M. E.	Portland	Multnomah
Gaylord Gerald Godfrey	Phar.	Oregon City	Clackamas
Spurgeon Sanford Gossman	Agri.	Hettinger, N. Dak.	
Charles Edward Granlund	Com.	Portland	Multnomah
Elizabeth Mahala Grant	D. S.	Huntington	Baker
Earl Dutton Hallock	Agri.	Heppner	Morrow
Esther Irene Hamblin	Com.	McMinnville	Yamhill
Ray Roy Hamersley	E. E.	Corvallis	Benton
Maude Ann Hanson	Com.	Corvallis	Benton
Chauncey Harrington	Com.	Corvallis	Benton
Earl Sorsby Harris	M. E.	Corvallis	Benton
Emma Harris	D. S.	Vale	Malheur
Jessie Harritt	D. S.	Salem	Marion
Earl Logan Harry	M. E.	Payette, Idaho.	
Scott Park Hart	C. E.	Albany	Linn
George Hastings	Phar.	Portland	Multnomah
Thomas Powers Hawkins	Phar.	Toledo	Lincoln
Ralph Victor Hawley	C. E.	Cottage Grove	Lane
Ruth Hawley	Com.	Corvallis	Benton
Marshall Crayne Hayes	For.	Pasadena, Calif.	
Alan Chas. Hazelrigg	E. E.	Medford	Jackson
Mitchell Heinemann	For.	Milwaukee, Wis.	
Harry Lynn Henkle	Com.	Raymond, Wash.	
Seldon Dillon Hill	Agri.	Medford	Jackson
Frances Hodes	D. S.	Corvallis	Benton
Marie A. Hofer	D. S.	Salem	Marion
Melvin Rutherford Hoff	Com.	New Era	Clackamas

Name.	Course.	Postoffice.	County.
Norlyn Paul Hoff	C. E.	Salem	Marion
George B. Holmes	M. E.	Medford	Jackson
George Evans Hopkins	C. E.	Corvallis	Benton
Benjamin F. Horning	Phar.	Toledo	Lincoln
Emil Edwin Horning	Com.	Corvallis	Benton
Mabel Agnes Houck	D. S.	Corvallis	Benton
Frank Helen Hout	Com.	Corvallis	Benton
D. C. Howard	Agri.	Corvallis	Benton
Walter William Howard	Agri.	Corvallis	Benton
Sadie Hubbard	D. S.	Dundee	Yamhill
Floyd Jerry Huntley	Agri.	Gold Beach	Curry
Harvey Hurd	For.	Toledo, Wash.	
Jerome Chas. Hurley	Phar.	Portland	Multnomah
Lester T. Hutt	M. E.	Yamhill	Yamhill
Rolland Clarance Ingram	C. E.	Cove	Union
Benjamin Barton Irving	C. E.	Dist. of Columbia	
Oscar William James	C. E.	Robinette	Baker
Geo. Ray Johnson	Agri.	Cooston	Coos
George Clay Jones	C. E.	Portland	Multnomah
Jacob Gray Kamm	Agri.	Portland	Multnomah
Frank Walter Kehrli	Agri.	Hillsdale	Multnomah
Don Gilbert Kellogg	Agri.	Hoquiam, Wash.	
John L. Kelly	Phar.	Jefferson	Marion
Oscar Edwin Kern	M. E.	Washougal, Wash.	
William Chas. Kinderman	E. E.	Hoskins	Benton
Arnold Herman Kuhnhausen	E. E.	Portland	Multnomah
Harry Bernette Lamley	Min.	Portland	Multnomah
Mayme Elizabeth Lance	D. S.	Corvallis	Benton
Adolph Leonard Larson	M. E.	Astoria	Clatsop
Alma Leibner	Com.	Albany	Linn
Guy E. Leonard	E. E.	Medford	Jackson
Edward Benjamin Loken	C. E.	Harrisburg	Linn
Glenn McAllister	E. E.	Shaw	Marion
Lawrence Leon McBride	Agri.	Eddyville	Lincoln
Bruce William McDaniel	Agri.	Joliet, Ill.	
Helen McFadden	D. S.	Corvallis	Benton
Julia McFadden	D. S.	Corvallis	Benton
Roy Oliver McGee	Agri.	Airlie	Polk
Adelia Hazel McGee	D. S.	Lakeview	Lake
James Blaine McKimens	Com.	Nehalem	Tillamook
William Clarke Mace	Agri.	Coquille	Coos
Ralph Clarence Makinson	Agri.	New Plymouth, Idaho	
Alfred Oscar Mangold	E. E.	Portland	Multnomah
Charles Haddon Manners	Agri.	Montclair, N. Y.	
Albert Freeman Mason	Agri.	Pasadena, Calif.	
Hattie Joy Mason	Com.	Hood River	Hood River
Rose Coffman Mason	Phar.	Jefferson	Marion
Richard W. Max Meyer	Agri.	Lents	Multnomah
Della Marion Mays	D. S.	Hillsboro	Washington

Name.	Course.	Postoffice.	County.
Thomas Everett May	Com.	Salem	Marion
Emily Marie Miller	D. S.	McCoy	Polk
Paul William Miller	Phar.	Salem	Marion
Ethel Elizabeth Millikin	Agri.	Ontario	Malheur
Elliot Maxwell Mitchell	Min.	Portland	Multnomah
Guy Ernest Mitchell	Min.	Joseph	Wallowa
James Franklin Mitts	Phar.	Corvallis	Benton
Cecil Paul Moffitt	Agri.	Junction	Lane
Sarah Morris	D. S.	Rainier	Columbia
Wilbert F. Morris	Com.	Rainier	Columbia
Edna Meryn Mott	Com.	Beaverton	Washington
George Frank Moznette	Agri.	Vancouver, Wash.	
Louisa Isabelle Musgrave	Com.	Corvallis	Benton
Francis Edward Neer	Agri.	Pasadena, Calif.	
David Franklin Newman	Min.	Galice	Josephine
Julia Eleanor Nicholson	D. S.	Portland	Multnomah
James Emmet Norton	Com.	Airlie	Polk
Charles Ernest Oakes	E. E.	Enterprise	Wallowa
Kate O'Connor	D. S.	Montague, Calif.	
Henry Odeen	C. E.	Portland	Multnomah
Oscar John Olson	For.	Corvallis	Benton
Christine Orford	D. S.	De Lamar, Idaho	
John William Patterson	Agri.	Baker City	Baker
Wilson Kinsey Peery	Agri.	Albany	Linn
Joy Florence Philippi	D. S.	Early	Gilliam
Rudio Clare Pierce	D. S.	La Grande	Union
Lorenzo Pilkington	Agri.	Astoria	Clatsop
Harold Filmore Platt	E. E.	Picton, Ont., Canada	
Fred Enos Plympton	C. E.	Portland	Multnomah
James Andrew Pointer	Phar.	Corvallis	Benton
Fred Smith Porter	C. E.	Eugene	Lane
Virgil Arthur Rawson	Agri.	The Dalles	Wasco
Thomas Reirrson	M. E.	Portland	Multnomah
Thomas Alfred Rice	Min.	Portland	Multnomah
Jas. Wilson Richardson	Agri.	McMinnville	Yamhill
Peter Melvin Rinearson	C. E.	Milwaukie	Clackamas
John Irving Roberts	C. E.	Dover	Clackamas
Nellie Marion Robinson	Com.	Beaverton	Washington
John Thornburn Ross	For.	Astoria	Clatsop
Elmo Nicholas Rotering	E. E.	Payette, Idaho.	
Henry Sannes	E. E.	Canby	Clackamas
Henry Isaac Savage	Agri.	Seattle, Wash.	
Harry August Schoth	Agri.	Oregon City	Clackamas
Fred William Schreiber	Agri.	McMinnville	Yamhill
Amelia Bertha Schroeder	D. S.	Winant	Lincoln
Lee Byrn Seavey	Agri.	Springfield	Lane
Frederic Cecil Shepard	For.	Roosevelt, Wash.	
Grace Sherrieb	D. S.	Hood River	Hood River
Robert E. Shinn	Agri.	Albany	Linn

Name.		Postoffice.	County.
James Carlton Shirley	E. E.	Medford	Jackson
Herbert William Siefert	Agri.	Pasadena, Calif.	
Philip J. Sinnott	Com.	Oregon City	Clackamas
Dexter Ralph Smith	C. E.	Portland	Multnomah
Edward Glenn Smyth	Agri.	Portland	Multnomah
Joseph William Sorenson	E. E.	Portland	Multnomah
Wilda C. Salomon	D. S.	Salem	Marion
James Luther Spence	Phar.	Corvallis	Benton
Carl Allison Starker	Agri.	Portland	Multnomah
Oscar Brent Stauff	Agri.	Cooston	Coos
Victor Hugo Stauff	Agri.	Cooston	Coos
Charles Virgil Strang	Phar.	Medford	Jackson
Hans Struve	Agri.	Pendleton	Umatilla
Cleve Sumerlin	Agri.	Myrtle Point	Coos
Robert Irwin Taylor	Agri.	Astoria	Clatsop
Leverne Tower	E. E.	Junction	Lane
Mabel Mary Turlay	Com.	Astoria	Clatsop
Blaine Turner	Agri.	Cleone	Multnomah
Roy Adrian Tycer	E. E.	Brownsville	Linn
Grace Waddle	D. S.	Long Beach, Calif.	
Harry Sidney Walters	Agri.	Cove	Union
Otto David Weaver	Agri.	Canyonville	Douglas
Victor Eugene Weber	E. E.	Brownsville	Linn
Elbert George Wells	Agri.	Halsey	Linn
Eleanor Lois White	D. S.	Goldendale, Wash.	
Flora Whiteley	D. S.	St. Johns, Newfoundla'd	
Gerald Wilcox	M. E.	Springwater	Clackamas
John Richard Williams	C. E.	Portland	Multnomah
William David Winniford	For.	Wren	Benton
Reginald Gordon Witte	For.	Milwaukie	Clackamas
Edwin Woodcock	Com.	Corvallis	Benton
Fred Byron Young	M. E.	Portland	Multnomah

SECOND YEAR SECONDARY.

Name.		Postoffice.	County.
Frank Peter Amort	Mech. Arts	Macleay	Marion
Claude Beard Andrews	Com.	Merrill	Klamath
Frank William Astmann	Com.	Portland	Multnomah
Leona Crawford Atherton	D. S.	Dayton, Wash.	
Marshall Alfred Baker	Mech. Arts	Portland	Multnomah
Harry Maurice Beck	C. E.	Corvallis	Benton
Edward Wm. Blurock	Mech. Arts	Deadwood, Calif.	
Ethel Belle Brackett	Com.	Rufus	Sherman
George Blaine Brown	Agri.	Lebanon	Linn
Lyman Harrison Case	Mech. Arts	Portland	Multnomah
Jas. Addison Chamberlain	Mech. A.	Portland	Multnomah
Willard Colfax Cheney	Mech. Arts	Oregon City	Clackamas
Arnold Alvin Clausen	Mech. Arts	Boyd	Wasco

Name.		Postoffice.	County.
Dorothy Florence Coolidge	D. S.	Fraser, Colo.	
Abbie R. Coon	D. S.	Steele, N. Dak.	
Walter Judson Cox	Com.	Burton, La.	
Hartzell Crosby	Agri.	Sherwood	Washington
Maude Crosby	D. S.	Sherwood	Washington
Willis Robert Dallas	Agri.	Kist	Columbia
Lena Mae Darnielle	Com.	Junction City	Lane
Wm. Alexander Davidson	Agri.	Hood River	Hood River
Pauline Davis	D. S.	Albany	Linn
William Edward Dupuis	Agri.	Nolin	Umatilla
Theodore Alfred Ellestad	Mech. A.	Central Point	Jackson
Denver Charles Evans	Mech. Arts	Eugene	Lane
Dorothy Evans	D. S.	Umpqua	Douglas
Albert Ray Fairbank	Mech. Arts	Lents	Multnomah
Allan Fletcher	Com.	Buell	Polk
Jas. Arthur Freeborough	Mech. A.	Portland	Multnomah
Mildred Gabriel	D. S.	Corvallis	Benton
Pearl E. Gates	D. S.	Corvallis	Benton
Peter Christian Hansen	Agri.	Rorme, Denmark	
Bessie Marie Hanseth	D. S.	Selma	Josephine
Lydia Blanche Harris	D. S.	Chula Vista, Calif.	
Mary W. Hawley	D. S.	Star	Lane
Chester Elwood Hazlitt	Agri.	Forest Grove	W'hingt'n
Maude Sonora Hess	D. S.	North Yakima, Wash.	
Charles Hockersmith	Agri.	Corvallis	Benton
Harry B. Howard	Mech. Arts	Corvallis	Benton
Russell M. Howard	Com.	Corvallis	Benton
Walter Philip Hubbard	Agri.	Corvallis	Benton
Cora May Hubler	Com.	Corvallis	Benton
Beatrice Mary Imrie	D. S.	Melrose	Douglas
Edwin August Jackson	Mech. Arts	Astoria	Clatsop
Elmo Elton Johnson	Agri.	Corvallis	Benton
Marvin Jordan	Mech. Arts	Palouse, Wash.	
Charles Allen King	Mech. Arts	Ashland	Jackson
Walter Jacob Koenig	Agri.	Lebanon	Linn
Gustave William Krause	Agri.	Cornelius	Washington
Arthur Lloyd Lance	Agri.	Corvallis	Benton
Blanche Lillian Landrith	D. S.	Marshfield	Coos
Edna Belle Laughlin	D. S.	Yamhill	Yamhill
Edwin Frank Laurin	For.	Astoria	Clatsop
Kathleen Lyster	D. S.	Corvallis	Benton
Stella Eva McGee	D. S.	Airlie	Polk
Eva Crystal McLagan	D. S.	Tangent	Linn
Ruby May McLagan	D. S.	Tangent	Linn
Olive MaxMeyer	Com.	Corvallis	Benton
Walter Dodge Merrick	Agri.	Medford	Jackson
William Metzger	Com.	Latourell	Multnomah
Helen Eve Mires	D. S.	Ellensburg, Wash.	
Merle Moore	Mech. Arts	Corvallis	Benton

Name.	Course.	Postoffice.	County.
Tadsu Naito	Agri	Tokyo, Japan	
Maude Isabelle Nebo	D. S.	Aurora	Marion
Kenneth Nelson	Agri	Eugene	Lane
Mont Oliver	Agri	Seattle, Wash.	
Francis Gerald Pelland	Mech. Arts	St. Paul	Marion
Harry Luther Porter	Agri	Medford	Jackson
Pearl May Post	D. S.	Eugene	Lane
William Pries	Mech. Arts	Alma, Kansas	
Erick Ruban Raddant	Mech. Arts	Siletz	Lincoln
Frances Claire Ramsey	Com	Lowell	Lane
Glenna Dewey Record	Com	Baker	Baker
Rubie Richards	Com	Corvallis	Benton
Weston Mathison Rider	Agri	Hudson, N. Y.	
Frank Schulmerich	Agri	Hillsboro	Washington
Ralph Emerson Sherwood	Com	Redmond	Crook
George Harry Smith	Mech. Arts	Portland	Multnomah
Glen Wood Smith	Mech. Arts	Latourell	Multnomah
Lester Raymond Smith	Agri	Corvallis	Benton
George Winfield Starr	Mech. Arts	Corvallis	Benton
Maude Olga Stenson	Com	Corvallis	Benton
Howard Benj. J. Stokes	Agri	Portland	Multnomah
Claude Toner	Mech. Arts	Yaquina	Lincoln
Ivan F. Totten	Agri	Corvallis	Benton
Rufino B. Tugbang	Mech. Arts	Barotac Viejo, P. I.	
Joseph Albert Turk	Mech. Arts	Portland	Multnomah
Eva Turner	D. S.	Cleone	Multnomah
Ernest Elgin Vallen	Mech. Arts	Elwood	Clackamas
Leif Erickson Wahlberg	Agri	Lents	Multnomah
Grace Alice Walker	D. S.	Corvallis	Benton
Frank George Waterhouse	For	Clastop	Clatsop
Esther White	D. S.	Goldendale, Wash.	
Charley Whiteside	Com	Corvallis	Benton
Mitchell Wilkins	Agri	Coburg	Lane
Alice Edna Williams	Com	Corvallis	Benton
Isaac James Wilson	Agri	Lewiston, Calif.	
Earl Young	Mech. Arts	Portland	Multnomah

FIRST YEAR SECONDARY.

Name.		Postoffice.	County.
Albert Alexander Amort	Mech. A.	Albany	Linn
Paul Francis Amort	Mech. Arts	Albany	Linn
Catherine Mae Asbahr	D. S.	Cornelius	Washington
Rachel Elizabeth Balderree	D. S.	Sampson	Douglas
Clyde Eugene Bannister	Mech. A.	Portland	Multnomah
Harry L. Barrett	Com	Portland	Multnomah
William Benham	For	Roseburg	Douglas
Royal Lincoln Berry	Mech. Arts	Aurora	Marion
Raymond Cleveland Blackman	Com	Baker Ciay	Baker

Name.	Course.	Postoffice.	County.
James Wilson Bowers	Agri	Ashland	Jackson
Alva Breithaupt	Agri	Clackamas	Clackamas
Herbert Heldrich Brown	Com	Wilbur	Douglas
Lee Earl Brown	Mech. Arts	Merrill	Klamath
Adlai J. Casteel	Mech. Arts	Yaquina	Lincoln
Alfred Bennett Casteel	For	Klamath Falls	Klamath
Willy Albert Clausius	For	Siletz	Lincoln
Frank Lewis Coleman	Com	Jacksonville	Jackson
Jay Frank Coolidge	Mech. Arts	Fraser, Colo.	
Henry Arnop Cooke	Mech. Arts	Shaniko	Wasco
Belle Dolly Cooper	D. S	Pittsburg, Pa.	
Louise Elsie Darby	D. S	Silverton	Marion
Hazel Lora Darneille	Com	Junction City	Lane
William Herschel Ellenberg	For	Drain	Donglas
Loyal Verne Emery	Agri	Umpqua	Douglas
Joe Paul Fairhurst	Agri	Corvallis	Benton
Nell Fairhurst	D. S	Gearhart	Clatsop
Jack Fendall	Com	Sheridan	Yamhill
Jessie Gay Foster	D. S	Island City	Union
Dora A. Fridley	Com	Klondike	Sherman
Nettie M. Fridley	Com	Klondike	Sherman
Guy Earl Gabriel	C. E	Corvallis	Benton
Lloyd Leroy Gabriel	Mech. Arts	Corvallis	Benton
Carl Lewis George	Agri	Portland	Multnomah
William Grenfell	Mech. Arts	McMinnville	Yamhill
Frank Hadrys	Mech. Arts	Portland	Multnomah
Henry Gustaff Hagg	Agri	Reedville	Washington
Ernest Handley	Agri	McMinnville	Yamhill
Warren R. Harmon	For	Walnut Grove, Minn.	
Marcus Frances Hathaway	Agri	Corvallis	Benton
Sidney Coleman Hawson	Mech. A	Condon	Gilliam.
Alex Hayes	Com	Corvallis	Benton
Joseph A. Henderson	Mech. Arts	Weston	Umatilla
John Ben Hinkle	Mech. Arts	Portland	Multnomah
Alice Winnifred Hockersmith	D. S	Corvallis	Benton
Ivan Henry Hockersmith	Agri	Corvallis	Benton
Maude Lucile Holgate	Com	Corvallis	Benton
Thomas Samuel Hudson	Agri	Talent	Jackson
Arvo A. Hukari	Agri	Hood River	Hood River
Mildred Lillian Imrie	D. S	Melrose	Douglas
William Earl Ingle	Mech. Arts	Heppner	Morrow
Chester Arthur Jones	Mech. Arts	Hoquiam, Wash.	
Fred Harold Kaiser	Agri	Macleay	Marion
Ivan Henry King	Agri	Holbrook	Multnomah
Kent Simeon Kraps	Agri	Salem	Marion
John Ammon Lankford	Mech. Arts	Salem	Marion
Ivan Hill Laughory	Agri	Monmouth	Polk
Leo L. Laythe	Agri	Harriman	Harney
Carl Frederick Leonetti	Mech. A	McCloud, Calif.	

Name.	Course.	Postoffice.	County.
Alexander Lewis Lindsay	Agri	Hilo, Hawaii	
Ralph Crain McBride	Mech. Arts	Pleasanton, Calif.	
George Anthony Maddox	Com	Roseburg	Douglas
Elmer Hugh Margason	Agri	Shedd	Linn
Ruth Alice Moffitt	D. S.	Junction	Lane
Silas Boyd Moffitt	Agri	Junction	Lane
Abbey Virginia Morrison	D. S.	Williams	Josephine
Eugene Franklin Morrison	Agri	Williams	Josephine
David Clayborn Mosby	Mech. Arts	Cottage Grove	Lane
William Franklin Mosher	Mech. A.	Salem	Marion
Gerhard William Naderman	Agri	Turner	Marion
Theodore Henry Naderman	Me. A	Turner	Marion
Eulalia Harriet Norton	D. S.	Blachly	Lane
Edmund Carlyle Norton	Com	Monroe	Benton
Perry Earl Opdyke	Mech. Arts	Hat Creek, Calif.	
Joseph Pennington Park	Mech. A	Corvallis	Benton
Earl Paulsen	Agri	Newberg	Yamhill
Elizabeth Porter	D. S.	Eugene	Lane
Harold Ohlene Powers	Com	Redfield, S. Dak.	
Alice Cassie Riggs	D. S.	Rickreall	Polk
Tildie Ringnes	D. S.	Silverton	Marion
William Johnson Rogers	Mech. A	Kalispell, Mont.	
Guy Orlando Sanborn	For	Astoria	Clatsop
Herbert George Schreiber	Agri	McMinnville	Yamhill
Bruce Edward Schulmerich	Agri	Hillsboro	Washington
Lester Sheeley	Mech. Arts	Vernonia	Columbia
Ruth Juanita Shepard	D. S.	Roosevelt, Wash.	
Reuben Temple Short	Agri	Portland	Multnomah
Grayce Velma Smith	Com	Corvallis	Benton
Harold A. Snell	Mech. Arts	Cayton, Calif.	
Clarence Leo Spence	Agri	Milton	Umatilla
Paul Elmer Stone	Agri	Portland	Multnomah
Carl Leverne Story	Com	Airlie	Polk
Herman Carl Stuwe	Mech. Arts	Aurora	Polk
Harry Allen Sutton	Mech. Arts	Aumsville	Marion
George Wells Taylor	Agri	Oakland	Douglas
John Hugh Taylor	Agri	Cottage Grove	Lane
Verne Jay Taylor	Com	Oakland	Douglas
Claude Clifford Thompson	Agri	Roseburg	Douglas
Edw. Franklin Underwood	Me. A	Boyd	Wasco
James Benjamin Ward	Mech. A	Gaston	Washington
Virgil E. Weckert	Mech. Arts	Sherwood	Washington
Alfred Monroe White	Agri	Cottage Grove	Lane

MUSIC.

Name.	Postoffice.	County.
Name	Postoffice.	County
Winnifred Aldrich	Corvallis	Benton

Name.	Postoffice.	County.
Mary Julia May Allen	Corvallis	Benton
Ernest Elbert Arant	Monmouth	Polk
Paul J. Batkin	Los Angeles, Calif.	
Janet Ann Blackledge	Corvallis	Benton
Elva Mable Boydston	Independence	Polk
Mrs. C. E. Bradley	Corvallis	Benton
Cecil Marie Brogden	Hillsboro	Washington
Emily Isabell Brown	Laidlaw	Crook
Blanch Calhoun	Camloops, British Columbia.	
Edith Casteel	Yaquina	Lincoln
Mary Eva Corrie	Corvallis	Benton
Jack Lorin Cowgill	Corvallis	Benton
Bertha Leona Cramer	Corvallis	Benton
Marion Croley	Corvallis	Benton
Anita Mabel Dodge	Corvallis	Benton
Maida Laura Doolittle	Corvallis	Benton
Edith Emery	Corvallis	Benton
Hazel Emery	Corvallis	Benton
Mrs. James Evers	Philomath	Benton
Ariel Mariam Ewing	Brooklyn N. Y.	
Mrs. J. W. Foster	Corvallis	Benton
Edna Freyler	Kansas City, Kans.	
Verna Lee Griffin	Corvallis	Benton
Zoe Belle Griffin	Corvallis	Benton
Fern Ethel Haller	Corvallis	Benton
Ella Agatha Hansen	The Dalles	Wasco
Eleaner Christine Hardman	Corvallis	Benton
Florence Rozelle Hardman	Corvallis	Benton
Sophia Hardman	Corvallis	Benton
Mrs. W. C. Hoeflein	Yaquina	Lincoln
Thelma Hoeflein	Yaquina	Lincoln
Helen Huston	Corvallis	Benton
Lillian Johnson	Corvallis	Benton
Queen Inez Johnson	Corvallis	Benton
Jessie Elizabeth Keady	Corvallis	Benton
Jean Marion Kent	Corvallis	Benton
Lynette Kerr	Corvallis	Benton
Georgia Kessi	Corvallis	Benton
Nora Kline	Corvallis	Benton
Mrs. C. L. Knopf	Corvallis	Benton
Belle Valentine Loosley	Fort Klamath	Klamath
Alice Marie McGinnis	Corvallis	Benton
Luther McGinnis	Corvallis	Benton
Rosa Meyer	Crabtree	Linn
Irene Evelyn Morgan	Puyallup, Wash.	
Clara May Morris	Portland	Multnomah
Sylvia Alice Oakes	Gaston	Yamhill
Helen Loretta Pelland	St. Paul	Marion
Vena Rickard	Corvallis	Benton

Name.	Postoffice.	County.
Hazel Ripley	Portland	Multnomah
Elma Ola Rogers	Corvallis	Benton
Valburg Romtvedt	Toledo	Lincoln
Victro Israel Safro	Dallas, Texas.	
Bertha Salome Schreiber	McMinnville	Yamhill
Placidus Emil Schubert	Corvallis	Benton
Myrtle May Sherman	Grants Pass	Josephine
Lawrence Skipton	Corvallis	Benton
Eleanor Smith	Suver	Polk
Helen Sprague	Corvallis	Benton
Wilda Starr	Corvallis	Benton
May Lyden Strine	Portland	Multnomah
Eleanor Margaret Sudtell	Halsey	Linn
Lystra Alice Tagg	Clatsop	Clatsop
Lena Belle Tartar	Corvallis	Benton
Christine Thordarson	Corvallis	Benton
Ray Palmer Tracy	Corvallis	Benton
Marion Turlay	Astoria	Clatsop
Maude Josephine Turlay	Astoria	Clatsop
Beulah Edell Tycer	Brownsville	Linn
Medora Wade	Corvallis	Benton
John W. Wells	Corvallis	Benton
Juliette Vivian Wellsher	Corvallis	Benton
John Bushrod Wilson	Corvallis	Benton
Mrs. H. Woodcock	Corvallis	Benton
Mrs. M. S. Woodcock	Corvallis	Benton

OPTIONAL.

Name	Postoffice.	County
Florence Bowden	St. Johns, Canada.	
Malo Claire Cady	Holbrook, Neb.	
Vance DeBar Colvig	Medford	Jackson
Clara Catherine Elmer	Jacksonville	Jackson
Keith Robert Ferguson	Boise, Idaho.	
Callie Lulu Fridley	Klondike	Sherman
Beulah Gustavia Gilkey	Corvallis	Benton
Frank Chikahiko Hashimoto	Nagoya, Japan.	
Josephine Edith Hathaway	Corvallis	Benton
Kenneth Fabius Hawley	Salem	Marion
Orace Genevieve Hawley	Amity	Yamhill
George Cochran Henderson	Medford	Jackson
Kenneth William Kinney	Astoria	Clatsop
Fay Kitchen	Roseburg	Douglas
Ethel Josephine Knepper	Los Angeles, Calif.	
Maude Gertrude McLaughlin	Independence	Polk
Margaret Mead Osburn	Newport	Lincoln
Francis Eliza Simpson	Elk City	Lincoln
Esther Ruby Smith	Corvallis	Benton

Name.	Postoffice.	County.
Lillian Thordarson	Corvallis	Benton
Opal Lucile Wasser	Minneapolis, Minn.	
Gordon Russel Watt	Amity	Yamhill

SPECIAL.

Name.		Postoffice.	County.
Cuba Oral Amick	Com.	New Pine Creek	Lake
Marguerita Andrews	Com.	Corvallis	Benton
Herbert Tompkins Blake	Agri.	Caldwell, Idaho.	
Theodore Loomis Bogert	Agri.	Evanston, Ill.	
Charles Storkton Brewster	Agri.	Portland	Multnomah
Mrs. Cecil LaRue Brown	Com.	La Grande	Union
Ellen Canfield	Agri.	Hermiston	Umatillia
Ernest Sylvester Cook	Agri.	Portland	Multnomah
Raymond Eugene Coursen	Agri.	Portland	Multnomah
Sumner John Damon	Agri.	Ferndale, Calif.	
Robert R. Denny	Agri.	Beaverton	Washington
Nina Douglas	D. S.	Corvallis	Benton
Edgar Russell Ellis	Agri.	Pendleton	Umatilla
Nellie Franklin	D. S.	Hamilton	Grant
Pearl May Gillett	D. S.	Albany	Linn
Devendra Narayan Guha	Agri.	Murshidabad, India.	
Gretta Harrington	Com.	Corvallis	Benton
Henry A. Hoyt	Agri.	Garrettford, Pa.	
Mrs. Zuba Earle James	D. S.	Darlington, Wis.	
Frederick Edwin Jones	Agri.	New Westminister, Can.	
Charles Chauncey Lamb	Agri.	Seneca Falls, N. Y.	
Anna Belle Lee	Agri.	Great Falls, Mont.	
William Egleson Lottman	Agri.	Portland	Multnomah
Gertrude McGee	Com.	Corvallis	Benton
John Henry Mack	Agri.	Portland	Multnomah
Edw. Bernhardt MaxMeyer	Agri.	Lents	Multnomah
Woodbury Raulet Melcher	Agri.	Hinsdale, Ill.	
Dora Mellon	D. S.	Corvallis	Benton
Shohachi Nishizaki	Agri.	The Dalles	Wasco
Charles Everette Peterson	Agri.	Portland	Multnomah
Leon Kirkwood Reynolds	Agri.	Portland	Multnomah
Jessie Audrey Rust	Agri.	Portland	Multnomah
Edwin T. Sherman	Com.	Corvallis	Benton
Frederick Laurence Strang	Agri.	Medford	Jackson
Clement Kimball Wilcox	Com.	Milton	Umatilla

SUMMER SCHOOL.

(Abbreviations indicate major courses as follows: Coll.—General; including Agriculture, Domestic Science and Art, Manual Training, etc.; Meth.—Methods in inductrial subjects in public schools; Prep.—Preparation for teachers' examinations; Super.—Supervision methods and high school branches.

Besides the major each student registered for industrial subjects.)

Name.	Course.	Postoffice.	County.
Florence Adams	Meth.	Corvallis	Benton
Ilse D. Ahlers	Prep.	Necanicum	Clatsop
Winnifred Aldrich	Music.	Corvallis	Benton
Edna B. Allen	Prep.	Corvallis	Benton
Evea Applegate	Prep.	Yoncalla	Douglas
Eva L. Applegate	Prep.	Yoncalla	Douglas
E. Elbert Arant	Super.	Monmouth	Polk
Rae Atherton	Music.	Corvallis	Benton
Paul E. Baker	Super.	Creswell	Lane
Myrtle M. Baker	Prep.	Creswell	Lane
Delle M. Baldwin	Meth.	Corvallis	Benton
Marguerite J. Banks	Meth.	Dayton	Yamhill
Lolah W. Barker	Meth.	Sheridan	Yamhill
Helen Barkman	Meth.	Corvallis	Benton
Mrs. Ella M. Baxter	Coll.	Chitwood	Lincoln
Emma Benedict	Meth.	Dufur	Wasco
Mae Benedict	Meth.	Carlton	Yamhill
Joseph Y. Bethune	Coll.	Wilsonville	Clackamas
Rufus E. Bible	Super.	Monument	Grant
May F. Boche	Meth.	John Day	Grant
Philip F. A. Boche	Super.	Monument	Grant
Archie J. Bonham	Coll.	Hoquiam, Wash.	
Jennie M. Booth	Prep.	Portland	Multnomah
George T. Brenner	Coll.	Oregon City	Clackamas
Lucile Brackett	Meth.	Portland	Multnomah
Carrie Buchanan	Meth.	Corvallis	Benton
Mildred Buchanan	Meth.	Corvallis	Benton
Wilma E. Burrows	Meth.	Lexington	Morrow
Iva Grace Burton	Super.	Independence	Polk
Mabelle Cameron	Meth.	Heppner	Morrow
Lucia D. Chapman	Prep.	Roseburg	Douglas
Minnie E. Chapman	Prep.	Roseburg	Douglas
Maude A. Chastain	Meth.	Wamic	Wasco
Mellie Colbey	Super.	Salem	Marion
Olita P. Cooley	Super.	Brownsville	Linn
Esther Copeland	Meth.	Toledo	Lincoln
Nellie Cyrus	Meth.	Corvallis	Benton
Peral May Davidson	Meth.	Dufur	Wasco
Mrs. Mabel Deems	Prep.	Boyd	Wasco
Gwendolyne Dicken	Meth.	Portland	Multnomah
Nellie C. Driver	Meth.	Victor	Wasco
Matty Duff	Prep.	Richmond	Wheeler
Madge D. Eis	Coll.	Cliffs, Wash.	
Mabel E. Elder	Prep.	Pendleton	Umatilla
Gertrude Esser	Coll.	Portland	Multnomah
Berda G. Evans	Meth.	Sheridan	Yamhill

Name.	Course.	Postoffice.	County.
Grace Farnham	Meth.	Springfield	Lane
Walter I. Ford	Super.	Dallas	Polk
Alice Forry	Meth.	Hood River	Hood River
Evelyn Gardner	Coll.	Forest Grove	Wash.
Mabel Gardner	Coll.	Corvallis	Benton
Orson M. Gardner	Super.	Forest Grove	Wash.
Wninnifred Gates	Music.	Corvallis	Benton
Bertha S. Gibson	Meth.	Lexington	Morrow
Anna Ruth Gilbert	Prep.	Newberg	Yamhill
Clara Gill	Coll.	Portland	Multnomah
Flora Gilliland	Meth.	Fossil	Wheeler
Margaret Gittins	Super.	Amity	Yamhill
Bess L. Gordon	Meth.	McMinnville	Yamhill
Grace Grafton	Coll.	Oregon City	Clackamas
Ella F. Groshong	Coll.	Fairbault, Minn.	
F. M. Groshong	Coll.	Portland	Multnomah
Delphine Haenel	Meth.	Junction	Lane
Mrs. Zaidee Hartman	Coll.	McMinnville	Yamhill
Clara Hartzog	Prep.	Lakeview	Lake
Flora Hassett	Meth.	Corvallis	Benton
G. W. Hauschild	Coll.	Seattle, Wash.	
Gertrude Harvard	Coll.	Astoria	Clatsop
Grace Henderson	Meth.	McMinnville	Yamhill
Lillian Hewes	Coll.	Albany	Linn
Leonard B. Hiebel	Prep.	Waterloo, Wis.	
Agnes L. Hilary	Meth.	McMinnville	Yamhill
Mary Hill	Prep.	Portland	Multnomah
Anna Holland	Prep.	Joliet, Mont.	
Mrs. J. B. Horner	Coll.	Corvallis	Benton
Vera D. Horner	Coll.	Corvallis	Benton
Charles A. Howard	Super.	Klamath Falls	Klamath
Fairy Howard	Meth.	Oakland	Douglas
Josephine Hyde	Meth.	Newberg	Yamhill
Ruth R. Jones	Prep.	Hillsboro	Washington
William R. Jones	Prep.	Corvallis	Benton
Ethel A. Joy	Meth.	Gaston	Washington
Lynette Kerr	Music.	Corvallis	Benton
P. Khankhoji	Coll.	Waroha, C. P., India.	
Bertha A. King	Meth.	Corvallis	Benton
Alfred E. Kinney	Coll.	Astoria	Clatsop
Mrs. Alfred Kinney	Coll.	Astoria	Clatsop
Leona Kline	Music.	Corvallis	Benton
Neva Kizer	Meth.	Clatskanie	Columbia
M. Elizabeth Knepper	Coll.	Jamestown, N. Dak.	
Ethel E. Kopplin	Prep.	Gaston	Washington
Helen Landrith	Prep.	Marshfield	Coos
Isla Laughlin	Meth.	Yamhill	Yamhill
Mrs. Lota Leever	Meth.	McMinnville	Yamhill
Eliza E. Love	Meth.	Heppner	Morrow

Name.	Course.	Postoffice.	County.
Alice McCornack	Meth.	Marcola	Lane
Ethel K. McDonald	Meth.	McMinnville	Yamhill
Iva McGinnis	Music.	Corvallis	Benton
Flora McShain	Prep.	Elgin	Union
Frances McWilliams	Prep.	Ashland	Jackson
Irma Madill	Prep.	Salem	Marion
Rose A. Matson	Coll.	Astoria	Clatsop
Maud Mattley	Coll.	Oregon City	Clackamas
Stella Mayfield	Meth.	Elgin	Union
Naomi B. Meek	Prep.	Corvallis	Benton
Maude Elnora Merrell	Prep.	Toledo	Lincoln
Edward A. Miller	Super.	Salem	Marion
Ethel E. Miller	Coll.	Sodaville	Linn
Lillie Miller	Meth.	Pioneer	Lincoln
Zena A. Miller	Prep.	Hood River	Hood River
Mary A. Murphy	Prep.	Ocean View	Lincoln
Ellen A. Nelson	Meth.	Lafayette	Yamhill
Grace Nichols	Prep.	Monroe	Benton
Madeline Nichols	Prep.	Monroe	Benton
Genevieve Nielsen	Meth.	The Dalles	Wasco
Mamie Noble	Meth.	Portland	Multnomah
Grace L. Noyes	Meth.	Newberg	Yamhill
Delia J. Ohlsen	Meth.	Yoncalla	Douglas
Hilda J. Olsen	Meth.	Silverton	Marion
Estella B. Parker	Coll.	Scappoose	Columbia
Elizabeth Parrott	Meth.	Roseburg	Douglas
Lillian M. Payne	Prep.	Mitchell	Wheeler
Clare F. Pepper	Meth.	Elgin	Union
Ann Philippi	Meth.	Freewater	Umatilla
Ruby A. Post	Meth.	Helix	Umatilla
Alberta Pruett	Prep.	Alsea	Benton
Belle Ranney	Prep.	Corvallis	Benton
Glenna Record	Coll.	Baker	Baker
Edna R. Reed	Meth.	Hillsboro	Washington
Ruby Rice	Coll.	Corvallis	Benton
Vena Rickard	Music.	Corvallis	Benton
Blanche E. Riddle	Meth.	Riddle	Douglas
Lola M. Rishel	Prep.	Newberg	Yamhill
D. O. Robinson	Coll.	Cattaraugus, N. Y.	
Alvhild Romtvedt	Prep.	Toledo	Lincoln
Mrs. D. L. Rood	Super.	Marshfield	Coos
Sara Ruggles	Meth.	Moro	Sherman
Lilli Schmidli	Coll.	Oregon City	Clackamas
Edith Sheak	Meth.	Philomath	Benton
Etta Shelton	Meth.	Union	Union
Gertrude Shepherd	Coll.	Halsey	Linn
Lloyd W. Shisler	Prep.	Harrisburg	Linn
Maude H. Simpson	Meth.	Sheridan	Yamhill
Lawrence Skipton	Music.	Corvallis	Benton

Name.	Course.	Postoffice.	County.
Esther Simmons	Coll.	Fresno, Calif.	
Ida Mae Smith	Meth.	Carlton	Yamhill
Ida Mae Smith	Coll.	Salem	Marion
Mary G. Smith	Meth.	Portland	Multnomah
Mabel H. Smith	Prep.	Mosquite	Malheur
Mrs. U. G. Smith	Coll.	Medford	Jackson
Effie M. Snider	Prep.	La Grande	Union
Mollie E. Snider	Prep.	La Grande	Union
Grace M. Snook	Meth.	La Grande	Union
Rae Snow	Prep.	Boise, Idaho.	
Helen Sprague	Music.	Corvallis	Benton
Dale Springer	Prep.	The Dalles	Wasco
Ida M. Stokes	Meth.	Welda, Kans.	
Ella Thacker	Coll.	Olex	Gilliam
W. E. Thompson	Super.	Cove	Union
Meda L. Tracey	Prep.	Drain	Douglas
Verlie E. Tracey	Prep.	Drain	Douglas
Evelyn Wahrer	Prep.	Grants Pass	Josephine
Nancy G. Wallace	Prep.	Portland	Multnomah
Vena Wallace	Coll.	Corvallis	Benton
Lottie E. Wall	Meth.	La Grande	Union
Mrs. A. E. Watson	Super.	Portland	Multnomah
Marjorie Weaver	Meth.	Elgin	Union
Flora Whiteley	Prep.	Corvallis	Benton
Olive C. Whitney	Coll.	Alsea	Benton
William A. Wiest	Super.	Salem	Marion
Marie Helmick-Wiest	Meth.	Salem	Marion
Lotta Wilson	Meth.	Freewater	Umatilla
Elsie Winters	Prep.	Sherwood	Washington
George S. Yates	Super.	Banks	Washington
Emily Young	Meth.	Hillsboro	Washington

WINTER COURSES.

MECHANIC ARTS.

Name.	Postoffice.	County
Benjamin Benshadler	Elgin	Union
Oscar Benshadler	Elgin	Union
T. P. Bierly	Albany	Linn
Clarence Castle Kryger	Bridgeport, Wash.	
William I. Loomis	Corvallis	Benton
Floyd Horace Minear	Medford	Jackson
James Norton	Corvallis	Benton
Ossian James Shirley	Corvallis	Benton
Louel Orestes Surgeon	Lafayette	Yamhill
George Welty Vernon	Astoria	Clatsop

COMMERCE.

Name.	Postoffice.	County
Harry M. Beck	Corvallis	Benton
Ferd H. Cate	Corvallis	Benton
Frank L. Coleman	Jacksonville	Jackson
Harry Leroy Cromwell	McCloud, Calif.	
George M. Devenport	Corvallis	Benton
Ella Gamble	Astoria	Clatsop
Marion Hunt	Sublimity	Marion
John Rollins, Jr	Corvallis	Benton
Lena Shearer	Shedd	Linn
H. Van Gunther	McCloud, Calif.	
Glenn Young	Hood River	Hood River

AGRONOMY.

Name.	Postoffice.	County
Charles Noble Bennett	Astoria	Clatsop
Robert Ray Booth	Alicel	Union
F. C. Buchholz	Grants Pass	Josephine
Fred Chase	Albany	Linn
Marion Howard Croley	Wilbur	Douglas
Horace B. Fletcher	Portland	Multnomah
J. H. Friswold	Yoncalla	Douglas
Sherman Hayes	Seattle, Wash.	
R. V. Hollenberg	Corvallis	Benton
Ernest W. Jacobson	Klamath Falls	Klamath
Leonard Terry Kittinger	Seattle, Wash.	
Arthur L. Lindahl	Warren	Columbia
Fred Loy	Buena Vista	Polk
John R. Loy	Buena Vista	Polk
Edwin Harlan McKibben	Ona	Lincoln
Floyd Lawrence Mack	Minneapolis, Minn.	
Emil B. Muhr	Warren	Columbia
John Conrad Naderman	Turner	Marion
C. E. Peterson	Portland	Multnomah
J. M. Prather	Buena Vista	Polk
T. W. Smith	Shedds	Linn
John J. Swanton	Medford	Jackson
Kingsley S. Thurston	Jefferson	Marion
Harry A. VanGilder	Wasco	Sherman
C. R. Widmer	Albany	Linn
Fred A. Young	La Grande	Union

DAIRY HUSBANDRY.

Name.	Postoffice.	County
Alfred Berglund	Colton	Clackamas
C. R. Brague	Corvallis	Benton
J. E. Dow	Deer Island	Columbia

Name	Postoffice.	County.
Clay Emerson Elliott	Nortons	Lincoln
Charles Gross	Portland	Multnomah
Harry Johnson	Cooston	Coos
Victor Lindstrom	Cooston	Coos
James Blaine McKimens	Nehalem	Tillamook
Charles McManus	Corvallis	Benton
John F. Middelstadt	Crabtree	Linn
Fletcher Ollis	Corvallis	Benton
Earl Raymond Poteet	Klamath Falls	Klamath
William Robitsch	Hemlock	Tillamook
Phil Streib	Milwaukie	Clackamas
Isabelle Syfers	Nortons	Lincoln
Percy E. Tallman	Corvallis	Benton
Charles Taylor	Hermiston	Umatilla
Clarence E. Terry	Carlton	Yamhill
Keith Charles Westwood	Klamath Falls	Klamath
Warren Wright	Portland	Multnomah

ANIMAL HUSBANDRY.

Name.	Postoffice.	County
W. B. Allen	Rickreall	Polk
Wm. Boentgen	Knappa	Clatsop
Frank Brandt	Sherman	Washington
Mrs. Ellen Humphrey Briggs	Portland	Multnomah
Percy Davis	Albany	Linn
Fred Ellis	Ft. Klamath	Klamath
Thomas Feemster	Corvallis	Benton
Adolf Fromherz	Corvallis	Benton
Jalmar Hayner Gertula	Albert	Clatsop
Willie Laubner	Albany	Linn
John B. Leech	Harrisburg	Linn
Perry Harlen McAlexander	Corvallis	Benton
Edward Lee McClain, Jr	Hood River	Hood River
Harold Magnus Magnusen	Mist	Columbia
M. Mizoguchi	La Grande	Union
Richard A. Ollis	Corvallis	Benton
Jack I. Pernot	Corvallis	Benton
Lillian Pfenninger	Milwaukie	Clackamas
F. M. Powell	Corvallis	Benton
Emil Theodore Raddant	Siletz	Lincoln
Harold Roenisch	Gold Hill	Jackson
J. Clarence Rollins	Corvallis	Benton
Dennis D. Rowland	White Salmon, Wash.	
Howard S. Stephens	Amity	Yamhill
David Swenson	Eugene	Lane
Harry S. Wade	Lostine	Wallowa
Jas. Warmington	N. Yamhill	Yamhill
De Forrest Whitney	Corvallis	Benton

DOMESTIC SCIENCE AND ART.

Name.	Postoffice.	County
Georgia Blevins	Tangent	Linn
Marie Boss	Milwaukie	Clackamas
Mrs. W. E. Bradley	Corvallis	Benton
Mrs. H. H. Bugbee	Corvallis	Benton
Mrs. Z. L. Chamberlain	Newberg	Yamhill
Jennie M. Cobb	Corvallis	Benton
Mrs. C. H. Dickinson	Corvallis	Benton
Nina Douglas	Corvallis	Benton
Georgie Fay French	Park Place	Clackamas
Mrs. Wm. H. Flint	Santa Barbara, Calif.	
Margaret Katherin Flint	Santa Barbara, Calif.	
Olive Hasty Flint	Santa Barbara, Calif.	
Mrs. G. W. Gilbert	Baker	Baker
Verna Lee Griffin	Corvallis	Benton
Zoa Belle Griffin	Corvallis	Benton
Mrs. S. K. Hartsock	Corvallis	Benton
Willa Hawley	Grass Valley	Sherman
Hilda Marie Hendrickson	Mayger	Columbia
Gladys Manzynita Hobson	Lyons	Linn
Alice Winifred Hockersmith	Corvallis	Benton
Maude Hess	Goldendale, Wash.	
Alma Anna Koch	Cornelius	Washington
Mrs. A. M. McLaughlin	Corvallis	Benton
Dora Mellon	Corvallis	Benton
Mrs. George Monroe	Parkdale	Hood River
Katherin Johanna Naderman	Turner	Marion
Margaret Christine Peterson	Junction	Lane
Alice Elizabeth Porter	Eugene	Lane
Ruth Rulifson	Salem	Marion
Lena Schindler	Salem	Marion
Bertha Salomea Schreiber	McMinnville	Yamhill
Cora Scott	Tangent	Linn
Emma Strine	Corvallis	Benton
Mrs. F. J. Sturgess	Vancouver, Wash.	
Christine Thordarson	Corvallis	Benton
Mrs. R. M. Tucker	Corvallis	Benton
Beulah Tycer	Brownsville	Linn
Mrs. W. D. Van Liew	New York, N. Y.	
Grace Waddle	Long Beach, Calif.	

HORTICULTURE.

Name.	Postoffice.	County
George A. Andrews	Medford	Jackson
Claude A. Arne	Cottage Grove	Lane
Charlie E. Bailey	Albany	Linn
William Baker	Hood River	Hood River
F. C. Bartlett	Brogan	Malheur

Name	Postoffice.	County.
Richard J. Bates	White Salmon, Wash.	
Logan Beck	Corvallis	Benton
Raymond S. Bixby	Freewater	Umatilla
Theodore Loomis Bogert	Evanston, Ill.	
Leonard Hubbell Brown	Corvallis	Benton
Edward Bruhn	Dayton	Yamhill
John Bruhn	Dayton	Yamhill
James M. Brydon	Victoria, B. C.	
Clarence Charles Buddenhagen	Portland	Multnomah
A. Robert Bullock	Corvallis	Benton
W. B. Butchart	Hood River	Hood River
George W. Butt	Hood River	Hood River
Frank L. Calhoun	Washington, D. C.	
John Bainbrigge Carey	White Salmon, Wash.	
Alfred S. V. Carpenter	Medford	Jackson
Mrs. George Carpenter	Medford	Jackson
George Boone Carpenter	Medford	Jackson
Leonard Carpenter	Medford	Jackson
Z. L. Chamberlain	Newberg	Yamhill
Geo. L. Chandler	Woodville	Jackson
Earl C. Chapin	Hood River	Hood River
Donald H. Clark	Grants Pass	Josephine
Martin L. Clement	Mosier	Wasco
Lyle L. Cole	Corvallis	Benton
R. Conklin	White Salmon, Wash.	
C. J. Currin	Monroe	Benton
Kenneth H. Delano	Hood River	Hood River
Chester Thurston Dewey	White Salmon, Wash.	
Chas. D. Dickinson	Corvallis	Benton
W. B. Dickerson	Hood River	Hood River
Euclid DeLoss Doty	Medford	Jackson
Herbert L. Douglass	White Salmon, Wash.	
Rhuben C. Elder	Hood River	Hood River
Ira Y. Elliott	Rushville, Mo.	
Robert Mosby Ewing	Dallas	Polk
Richard Fitch Flint	Ridgefield, Conn.	
Fred Hollister Getchell	Corvallis	Benton
George Wesley Gilbert	Baker	Baker
R. L. Glass	Corvallis	Benton
Harry Noyes Gleim	Talent	Jackson
Arthur W. Hager	Montavilla	Multnomah
Ray A. Hall	Hood River	Hood River
Hugh W. Hamlin	Underwood, Wash.	
Frank Hannell	Nelson, B. C.	
Peter Hansen	Salem	Marion
Henry J. Hanson	Boring	Clackamas
Glenn Harding	Clatskinie	Columbia
Jesse Harper	Junction City	Lane
George Albert Heatherbell	Victoria, B. C.	

Name	Postoffice.	County.
Elizabeth Hess	N. Yakima, Wash.	
Hazel Holmes	Underwood, Wash.	
Henry M. Hosick	Hood River	Hood River
L. H. Houston	Talent	Jackson
Charles W. Howard	Hood River	Hood River
J. D. Howell	Corvallis	Benton
S. W. Jamieson	Dell	Malheur
Mrs. S. W. Jamieson	Dell	Malheur
Ida Jones	Brooks	Marion
Frederick Edwin Jones	New Westminister, B. C.	
Harvey E. Jones	Hood River	Hood River
George W. Karbach	Portland	Multnomah
Lawrence K. Kelly	Hood River	Hood River
Joseph A. Kerr	Corvallis	Benton
Fordham B. Kimball	Hood River	Hood River
Ethel Josephine Knepper	Los Angeles, Calif.	
G. A. Lawson	Shedd	Linn
William G. Leckband	Dayton	Yamhill
Dan W. Le Gore	Portland	Multnomah
Margaret Brown McCord	Medford	Jackson
Laura R. Mack	Minneapolis, Minn.	
Woodbury R. Melcher	Ashland	Jackson
Walter Dayton Merrick	Medford	Jackson
Rollin Ives Merrifield	Sheridan	Yamhill
John Mickelsen	Montaville	Multnomah
George Monroe	Parkdale	Hood River
John F. Moore	Cove	Union
Julius Irving Moreland	Hood River	Hood River
Chris Myhoe	Junction City	Lane
Walter Niehans	Hood River	Hood River
William A. Orr	Corvallis	Benton
William H. Ollis	Corvallis	Benton
Helen Loretta Pelland	St. Paul	Marion
Philip O. Pelland	St. Paul	Marion
Albert William Peters	Hood River	Hood River
Peter A. Pehrsson	Junction City	Lane
Russell G. Pond	Mt. Hood	Hood River
C. S. Prather	Corvallis	Benton
Ralph D. Richardson	Seattle, Wash.	
Sprague Riegel	Gold Hill	Jackson
Alexander Rossean	Medford	Jackson
Mrs. C. R.Schmick	Hood River	Hood River
Eugene A. Richard Schmitz	Greenwich, Conn.	
Clem J. Schwieterman	Prairie City	Grant
Percival Pickett Scott	"Vendale," Surbita, England	
Mrs. Winifred Sercumbe	Medford	Jackson
Olger Sether	Glendale	Jackson
Duane S. Somerville	Hood River	Hood River
James Brookes Spencer	Medford	Jackson

Name	Postoffice.	County.
Anson Wilbur Stone	Mt. Hood	Hood River
W. J. Strong	Wolseley, Canada.	
Fred J. Sturgess	Vancouver, Wash.	
Edward Swanson	Corvallis	Benton
Louis C. Sweet	White Salmon, Wash.	
Mrs. John H. Suuhoff	Hood River	Hood River
Albert W. Thomas	Ashland	Jackson
C. H. Thomas	Hood River	Hood River
O. A. Voight	Gilmer, Wash.	
Charles A. Woods	Corvallis	Benton
Ralph Fletcher Wave	Medford	Jackson
Charles W. Waters	Greenwich, Conn.	
S. E. Weber	Underwood, Wash.	
William Raymond Wells	White Salmon, Wash.	
C. A. Westerdahl	Medford	Jackson
C. Nixon Williams	Medford	Jackson
James M. Wilson	Oswego	Clackamas
Richard Withycombe	Gaston	Washington
Lem Yarnell	Lyle, Wash.	

GENERAL AGRICULTURE.

Name.	Postoffice.	County
Jas. J. Albert	Salem	Marion
John Elmer Aldrich	Corvallis	Benton
W. P. Alexander	Roseburg	Douglas
Arthur George Allen	Corvallis	Benton
W. B. Allen	Rickreall	Polk
Aaron Andrews	Corvallis	Benton
Chas. Anderson		Multnomah
E. C. Armstrong	Salem	Marion
Beatrice H. Baker	Newport	Lincoln
Charles Baker	Corvallis	Benton
Mrs. Charles L. Baker	Corvallis	Benton
Mabel Baker	Corvallis	Benton
Samuel Y. Bartholomew	Eugene	Lane
E. G. Barzie	Corvallis	Benton
Charles Beach	Corvallis	Benton
Jerry Beebe	Eugene	Lane
J. M. Bell	Corvallis	Benton
F. D. Bevens	Corvallis	Benton
P. N. Bodtker	Junction	Lane
Theodore L. Bogert	Evanston, Ill.	
J. P. Bolton	Dufur	Wasco
Marie Boss	Milwaukie	Clackamas
Clarence Sauthgate Bowne	Aumsville,	Marion
William Ellen Bowers	Brownsville	Linn
Clarence Herbert Brown	Shedds	Linn
Joseph Henry Brown	Dallas	Polk

Name	Postoffice.	County.
A. R. Bullock	Sheridan	Yamhill
Thomas J. Butler	Albany	Linn
Owen Callaghan	Newport	Lincoln
J. Cameron	Albany	Linn
Dugald Campbell	Eugene	Lane
Wilson A. Carey	Halsey	Linn
J. P. Carroll	Mosier	Wasco
George Remer Castuer	Hood River	Hood River
Claude Cliffton Cate	Brownsville	Linn
B. P. Catos	Corvallis	Benton
R. O. Caves	Corvallis	Benton
E. P. Chase	Eugene	Lane
F. C. Clausen	The Dalles	Wasco
Myron F. Clintsman	Corvallis	Benton
S. Cochran	La Grande	Union
Fred H. Coffin	Lebanon	Linn
Gilbert S. Coffin	Lebanon	Linn
Vivian Mitchion Collins	Corvallis	Benton
C. L. Copple	Corvallis	Benton
L. L. Cole	Fayette, Iowa.	
Abbie Coon	Corvallis	Benton
Mrs. W. W. Coon	Corvallis	Benton
Willard Wiley Coon	Corvallis	Benton
Thos. H. Cooper	Corvallis	Benton
George Ernest Cooper	Corvallis	Benton
Fred Royal Cooper	Corvallis	Benton
L. L. Davis	Corvallis	Benton
Charles D. Dickinson	Corvallis	Benton
Mrs. May J. Dodge	Corvallis	Benton
J. W. Dodge	Corvallis	Benton
T. J. Dorgan	Corvallis	Benton
W. H. Eagy	Albany	Linn
H. Eberting	Corvallis	Benton
Mrs. Edna Eberting	Corvallis	Benton
Fred R. Elliott	Dallas	Polk
Mrs. Iva Elliott	Dallas	Polk
William M. Faulkner	Denzer	Lincoln
Ethan E. Faulkner	Denzer	Lincoln
Thomas Feemster	Corvallis	Benton
Francis M. Fiechter	Corvallis	Benton
H. N. Foster	Corvallis	Benton
W. M. Foster	Independence	Polk
Frank Francisco	Corvallis	Benton
Ossen Gabriel	Corvallis	Benton
Samuel Jay Galloway	Hillsboro	Washington
Robert H. Gellatly	Philomath	Benton
George W. Gilbert	Baker	Baker
Frank Ginther	Corvallis	Benton
John B. Goodman	Corvallis	Benton

Name	Postoffice.	County.
Benjamin Dwight Graf	Portland	Multnomah
William Lincoln Graham	Wren	Benton
J. C. Griffin	Salem	Marion
W. F. Groves	Corvallis	Benton
S. G. Hague	Kirkland, Wash.	
Charles Hallaway	Brownsville	Linn
William Halloway	Albany	Linn
Henry J. Hanson	Boring	Clackamas
Mahlon H. Harlow	Eugene	Lane
Arthur L. Heacock	Boring	Clackamas
Harry Heath	Corvallis	Benton
Clayton Herron	Junction	Lane
Margaret Herron	Corvallis	Benton
R. C. Herron	Corvallis	Benton
Joseph A. Hite	Corvallis	Benton
John N. Hockersmith	Corvallis	Benton
O. E. Hogan	Seattle, Wash.	
H. L. Holgate	Klamath Falls	Klamath
Frank Holm	Olney	Clatsop
Jacob O. Holt	Eugene	Lane
Chas. W. Howard	Hood River	Hood River
Jerome W. Howard	Hood River	Hood River
H. H. Hubbell	Corvallis	Benton
J. W. Jenkins	McCoy	Polk
Walter T. Jenks	Salem	Marion
A. J. Johnson	Corvallis	Benton
B. W. Johnson	Corvallis	Benton
C. W. Johnson	Corvallis	Benton
Harry Johnson	Cooston	Coos
Mrs. James Johnson	Portland	Multnomah
James Johnson	Portland	Multnomah
J. K. Johnson	Corvallis	Benton
Robert Johnson	Granger	Benton
F. E. Jones	New Westminister, B. C.	
Seymour Jones	Salem	Marion
Joseph Adison Kerr	Corvallis	Benton
E. A. Kurtz	Salem	Marion
William Laubner	Albany	Linn
Franklin P. Lane	Newport	Lincoln
Archibald W. Leaman	Portland	Multnomah
Jacob Lebee	Corvallis	Benton
Albert Lewis	Oregon City	Clackamas
Frederick G. Lewis	Crow	Lane
Samuel K. Lewis	Corvallis	Benton
Victor Lindstrom	Cooston	Coos
Alfred Rinhart Locke	Corvallis	Benton
Walter N. Locke	Corvallis	Benton
Frank Lyon	Corvallis	Benton
Jesse Lee McMillin	Crabtree	Linn

Name	Postoffice.	County.
Frank Macey	Corvallis	Benton
R. N. Magness	Amity	Yamhill
Anton Malar	Boring	Clackamas
Henry Mattson	Independence	Polk
J. E. Maxwell	Lincoln, Neb.	
Mrs. E. S. Meldrum	Milwaukie	Clackamas
Charles A. Merriam	Eugene	Lane
Frances M. Meyer	Corvallis	Benton
Carol D. Miller	Harrisburg	Linn
E. A. Miller	Corvallis	Benton
F. L. Miller	Corvallis	Benton
Rosco Evert Miller	Hood River	Hood River
George H. Monroe	Parkdale	Hood River
J. R. Montgomery	Corvallis	Benton
Mrs. Josephine Moore	Corvallis	Benton
Sam H. Moore	Corvallis	Benton
Miss Florence Morton	The Dalles	Wasco
Victor P. Moses	Corvallis	Benton
C. A. Murphey	Corvallis	Benton
John C. Naderman	Turner	Marion
O. H. Naef	Milwaukie	Clackamas
W. K. Newell	Gaston	Washington
Clyde Ellsworth Niles	Medford	Jackson
Thomas J. Nolan	Corvallis	Benton
C. A. Park	Salem	Marion
Lloyd R. Patterson	Harrisburg	Linn
C. E. Peterson	Corvallis	Benton
Hans C. Petersen	Junction City	Lane
Jefferson A. Pooler	Salem	Marion
James Walter Pomeroy	Scappoose	Columbia
Mrs. John F. Porter	Corvallis	Benton
William D. Porter	Shedd	Linn
Perry O. Powell	Monmouth	Polk
Clay Prather	Corvallis	Benton
J. C. Rallins	Corvallis	Benton
W. J. Read	Corvallis	Benton
Louis O. Rhodes	Hood River	Hood River
Mrs. Bay Rickard	Corvallis	Benton
Barnett Y. Roe	Gaston	Yamhill
George K. Rogers	Portland	Multnomah
William W. Rosebraugh	Philomath	Benton
Arthur F. Rowley	Lupert, Idaho.	
D. W. Rumbaugh	Albany	Linn
Andrew Sandwick	Corvallis	Benton
William Schulmerich	Hillsboro	Washington
E. Vern Smith	Hoquiam, Wash.	
Frank W. Smith	Corvallis	Benton
Joseph Smith	Corvallis	Benton
Squire Jason Smith	Corvallis	Benton

Name	Postoffice.	County.
William E. Smith	Corvallis	Benton
George Spence	Corvallis	Benton
John E. Stransbery	Portland	Multnomah
Albert F. Starr	Corvallis	Benton
Mrs. D. P. Strait	Newberg	Yamhill
Syhan Strait	Newberg	Yamhill
Mrs. Julean Stratton	Salem	Marion
William K. Surry	Lyons	Linn
Peter A. Swanson	Corvallis	Benton
George N. Taggart	Hillsboro	Washington
Bert L. Taylor	Corvallis	Benton
Charles Otis Taylor	Brownsville	Linn
William Charles Taylor	Hermiston	Umatilla
Walter K. Taylor	Corvallis	Benton
Mrs. James J. Thurston	Suver	Polk
Abraham Lincoln Turner	Corvallis	Benton
Jacob Vaness	Hoquiam, Wash.	
V. A. Vidito	Corvallis	Benton
Willis Vidito	Corvallis	Benton
H. C. Van Behren	Aumsville	Marion
Paul B. Wallan	Salem	Marion
J. T. Warman	Corvallis	Benton
George Dewey Weaver	Myrtle Creek	Douglas
Edwin Weaver	Myrtle Creek	Douglas
George W. Week	Salem	Marion
John William Wells	Imbler	Union
C. W. West	Oswego	Washington
Samuel Whiteside	Corvallis	Benton
William Whiteside	Corvallis	Benton
John Whitaker	Corvallis	Benton
James S. Wiegle	Harrisburg	Linn
Clarence Eastean Wilson	Sheridan	Yamhill
John Harrison Wilson	Corvallis	Benton
Lewis Wilson	Corvallis	Benton
John Wills	Albany	Linn
Jas. Winstanley	Salem	Marion
Ira D. Wonderley	Rainier	Columbia
Allen William Zimmerman	Portland	Multnomah

POULTRY.

Name.	Postoffice.	County.
George Armstrong	Corvallis	Benton
L. G. Atherton	Corvallis	Benton
Mrs. G. O. Bassett	Corvallis	Benton
Mrs. O. T. Beals	Corvallis	Benton
S. E. Beal	Corvallis	Benton
G. M. Beeler	Corvallis	Benton
Mrs. H. H. Bertsch	Corvallis	Benton
Elizabeth Bogard	Corvallis	Benton

Name	Postoffice.	County.
J. Fred Buchanan	Corvallis	Benton
Mrs. P. L. Cate	Corvallis	Benton
P. L. Cate	Corvallis	Benton
Mrs. C. W. Cole	Corvallis	Benton
C. W. Cole	Corvallis	Benton
E. A. Cone	Corvallis	Benton
J. H. Dawson	Corvallis	Benton
W. J. Dunnley	Shedd	Linn
P. B. Eaton	Corvallis	Benton
W. G. Eberting	Corvallis	Benton
Mrs. J. M. Emery	Corvallis	Benton
J. M. Emery	Corvallis	Benton
Mr. Ewing	Corvallis	Benton
Mrs. Helen M. Ewing	Corvallis	Benton
Mrs. N. E. Feaker	Corvallis	Benton
Mrs. L. Fernamburg	Corvallis	Benton
Leonard Fernamburg	Corvallis	Benton
Roy Filbey	Corvallis	Benton
C. A. Fowler	Hoskins	Benton
J. E. French	Corvallis	Benton
E. S. Gardner	Corvallis	Benton
F. C. Gates	Corvallis	Benton
Mrs. A. F. Goettshe	Corvallis	Benton
Wm. Goldron	Corvallis	Benton
M. E. Gragg	Corvallis	Benton
Mrs. M. E. Gragg	Corvallis	Benton
J. M. Guthrie	Philomath	Benton
M. D. Hall	Corvallis	Benton
Ellis Hammer	Corvallis	Benton
W. J. Harper	Corvallis	Benton
Mrs. Albert Hawkins	Vancouver, Wash.	
Mrs. A. L. Heacock	Boring	Clackamas
Lee Henkle	Corvallis	Benton
G. E. Hinton	Corvallis	Benton
Mrs. G. E. Hinton	Corvallis	Benton
Mrs. J. B. Horner	Corvallis	Benton
Brooke Hukill	Corvallis	Benton
Mrs. Geo. W. Humphrey	Corvallis	Benton
George W. Humphrey	Corvallis	Benton
R. B. James	Robinet	Baker
Mrs. R. B. James	Robinet	Baker
W. E. Judson	Portland	Multnomah
F. B. Kimball	Hood River	Hood River
John H. Koch	Albany	Linn
Ed. Keyes	Corvallis	Benton
Charles A. King	Ashland	Jackson
Harvey Knisken	Corvallis	Benton
G. A. Lawson	Shedd	Linn
R. W. Liddle	Polk, Iowa.	

Name.	Postoffice.	County.
Mrs. E. W. Liddle	Corvallis	Benton
F. M. Logan	Corvallis	Benton
Mrs. W. Loomis	Corvallis	Benton
Nathan E. Marrock	Corvallis	Benton
J. E. Maxwell	Lincoln, Neb.	
Mrs. M. C. Matthew	Portland	Multnomah
Mr. McDaniel	Corvallis	Benton
Mrs. McDaniel	Corvallis	Benton
Mrs. McGinnis	Corvallis	Benton
A. M. McLaughlin	Corvallis	Benton
Mrs. E. S. Mildrum	Milwaukie	Clackamas
C. D. Minton	Portland	Multnomah
Arthur Moore	Independence	Polk
Rev. P. A. Moses	Corvallis	Benton
R. A. Ollis	Corvallis	Benton
Mrs. J. T. Patterson	Corvallis	Benton
K. C. Pearcy	Portland	Multnomah
Mrs. M. J. Peery	Corvallis	Benton
S. A. Pfilpold	Corvallis	Benton
H. A. Phillips	Roseburg	Douglas
J. A. Pugh	Shedds	Linn
Mrs. J. A. Pugh	Shedds	Linn
W. A. Quick	Corvallis	Benton
A. C. Rees	Corvallis	Benton
H. J. Reese	Salem	Marion
E. A. Rhoten	Albany	Linn
G. F. Rice	Corvallis	Benton
F. L. Robinson	Corvallis	Benton
Mrs. F. L. Robinson	Corvallis	Benton
J. W. Rodgers	Corvallis	Benton
Dorris Sawyer	Corvallis	Benton
L. E. Sivan	Nome, Alaska.	
F. O. Sunsan	Corvallis	Benton
Edgar Raymond Shepard	Corvallis	Benton
Elsie Shepard	Corvallis	Benton
Gene M. Simpson	Corvallis	Benton
A. B. Slocum	Philomath	Benton
A. M. Smith	Corvallis	Benton
Mrs. G. Spence	Corvallis	Benton
Hester Spence	Corvallis	Benton
W. M. Spayd	Corvallis	Benton
Geo. H. Stafford	Corvallis	Benton
Mrs. Geo. H. Stafford	Corvallis	Benton
Miss Stafford	Corvallis	Benton
C. R. Stenson	Corvallis	Benton
E. J. Stutz	Corvallis	Benton
L. L. Swan	Albany	Linn
Mrs. C. Taunton	Corvallis	Benton
J. D. Taylor	Corvallis	Benton

Name.	Postoffice.	County.
Mrs. J. D. Taylor	Corvallis	Benton
Matt Thomson	Corvallis	Benton
Elizabeth Wahlberg	Portland	Multnomah
Mrs. Hans C. Wahlberg	Portland	Multnomah
Mrs. S. Weckert	Corvallis	Benton
Forest Whitney	Corvallis	Benton
Mrs. J. W. Wilkinson	Corvallis	Benton
Mr. Wilson	Corvallis	Benton
Mrs. Hallie Wilson	Corvallis	Benton
W. A. Williams	Toledo	Lincoln
Mrs. B. E. Withgitt	Corvallis	Benton
A. J. Holcott	Corvallis	Benton
H. F. Wood	Corvallis	Benton
S. M. Wood	Corvallis	Benton
T. B. Worley	Corvallis	Benton

SPECIAL COURSES FOR WOMEN.

Name.	Postoffice.	County.
Mrs. J. H. Albert	Salem	Marion
Mrs. J. E. Aldrich	Corvallis	Benton
Mrs. A. I. Allen	Corvallis	Benton
Mrs. Minnie Armstrong	Corvallis	Benton
Miss Josephine Armstrong	Corvallis	Benton
Mrs. Lou Armstrong	Corvallis	Benton
Lizzie Axtell	Corvallis	Benton
Mrs. Lorena Barzee	Corvallis	Benton
Mrs. J. A. Bexell	Corvallis	Benton
Marie Boss	Milwaukie	Clackamas
Mrs. Bowdon	Corvallis	Benton
Mrs. R. Bradley	Corvallis	Benton
Mrs. A. Brauer	Corvallis	Benton
Mrs. J. H. Brown	Dallas	Polk
Mrs. J. E. Buchanan	Corvallis	Benton
Miss Nancy Campbell	Corvallis	Benton
Mrs. Cathey	Corvallis	Benton
Mrs. Cochran	Corvallis	Benton
Mrs. L. L. Collins	Albany	Linn
Mrs. A. Cone	Corvallis	Benton
Mrs. G. A. Covell	Corvallis	Benton
Lina Etta Cowgill	Corvallis	Benton
Mrs. A. R. Cummings	Camby	Clackamas
Grace S. Dahymple	Portland	Multnomah
Mrs. Margaret Dickenson	Corvallis	Benton
Mrs. C. A. Dobell	Corvallis	Benton
Nina Douglas	Corvallis	Benton
Mrs. Frank Douglas	Corvallis	Benton
Mrs. G. R. Farra	Corvallis	Benton
Sarah Fiechte	Corvallis	Benton
Amelia A. Foshay	Albany	Linn

Name.	Postoffice.	County.
Fay French	Parkplace	Clackamas
Mrs. W. F. Gaskins	Corvallis	Benton
Mrs. G. W. Gilbert	Baker	Baker
Mrs. Caroline Gilbert	Corvallis	Benton
Mrs. J. A. Gilkey	Corvallis	Benton
Helen Gilkey	Corvallis	Benton
Pearl May Gillett	Albany	Linn
Mrs. Gilmore	Corvallis	Benton
Mrs. Laura Hill Griffin	Corvallis	Benton
Mrs. Mary B. Griffin	Corvallis	Benton
Verna Lee Griffin	Corvallis	Benton
Zoa Belle Griffin	Corvallis	Benton
Mrs. J. C. Griffin	Salem	Marion
Mrs. R. A. Hall	Hood River	Hood River
Willa Hawley	Home Valley, Wash.	
Mrs. J. L. Henderson	Corvallis	Benton
Mrs. M. Helkle	Corvallis	Benton
Mrs. Otto F. L. Herse	Corvallis	Benton
Alice Hockersmith	Corvallis	Benton
Charlotte B. Huff	Portland	Multnomah
Savilla Humiston	Portland	Multnomah
Mrs. G. R. Hyslop	Corvallis	Benton
Mrs. A. P. Johnson	Corvallis	Benton
Mrs. Robert Johnston	Corvallis	Benton
Mrs. C. L. Johnson	Corvallis	Benton
Mrs. James Johnson	Portland	Multnomah
Mrs. Alma Jones	Corvallis	Benton
Ida Jones	Brook	Marion
Mabel Jenkins	McCoy	Polk
Mrs. H. A. Kesterson	Corvallis	Benton
Mrs. A. King	Portland	Multnomah
Pauline Kline	Corvallis	Benton
Mrs. O. E. Krausee	Corvallis	Benton
Mrs. J. T. Lance	Corvallis	Benton
Mrs. Wilson James Laurie	Robinet	Baker
Mrs. Minnie Lee	Corvallis	Benton
Esther V. Leech	Grants Pass	Josephine
Mrs. B. G. Leedy	Corvallis	Benton
Mrs. Locke	Corvallis	Benton
Mrs. McAlexander	Corvallis	Benton
Mrs. C. M. McKellips	Corvallis	Benton
Mrs. A. M. McLaughlin	Corvallis	Benton
Mrs. M. J. Margason	Sheds	Linn
Mrs. L. E. Maxwell	Corvallis	Benton
Dora Z. Mellon	Corvallis	Benton
Mrs. L. Merritt	Corvallis	Benton
Mrs. F. M. Meyer	Corvallis	Benton
Mrs. F. E. Miller	Corvallis	Benton
Mrs. J. A. C. Mills	Corvallis	Benton

Name	Postoffice.	County.
Mrs. G. H. Monroe	Parkdale	Hood River
Mrs. J. R. Montgomery	Corvallis	Benton
Mrs. F. M. Morgan	Corvallis	Benton
Mrs. M. A. Musgrave	Corvallis	Benton
Mrs. T. A. Niece	Corvallis	Benton
Mrs. Adaline Olsen	Corvallis	Benton
Mrs. G. W. Peacy	Corvallis	Benton
Mrs. H. S. Pernot	Corvallis	Benton
Anna Pettengell	St. Johns, Canada.	
Mrs. J. H. Pinkerton	Corvallis	Benton
Mrs. J. A. Pooler	Salem	Marion
Elizabeth A. Porter	Eugene	Lane
Mrs. J. C. Rallins	Corvallis	Benton
Mrs. G. B. Rickard	Corvallis	Benton
Mrs. P. Rickard	Corvallis	Benton
Mrs. Nana Rosebraugh	Philomath	Benton
Ruth Rosebraugh	Philomath	Benton
Mrs. W. T. Rowley	Corvallis	Benton
Mrs. W. S. Sawyer	Corvallis	Benton
Bertha S. Schreiber	McMinnville	Yamhill
Mrs. H. D. Scudder	Corvallis	Benton
Mrs. M. J. Skipton	Corvallis	Benton
Mrs. Smiley	Corvallis	Benton
Effie Edington Smith	Corvallis	Benton
Mrs. R. L. Smith	Corvallis	Benton
Margaret Snell	Corvallis	Benton
Mrs. J. Tann	Corvallis	Benton
Mrs. H. W. Tartar	Corvallis	Benton
Mrs. C. F. Tharp	Corvallis	Benton
Christine Thordarson	Corvallis	Benton
Mrs. John Thordarson	Corvallis	Benton
Lillian Thordarson	Corvallis	Benton
Alice Thurston	Suver	Polk
Mrs. J. Thurston	Suver	Polk
Mrs. R. M. Tucker	Corvallis	Benton
Eva Turner	Corvallis	Benton
Mrs. Jennie Turner	Corvallis	Benton
Mrs. Kittie G. Turner	Corvallis	Benton
Mrs. Belle Vail	Corvallis	Benton
Mrs. D. W. Van Liew	New York, N. Y.	
Grace Waddell	Long Beach, Calif.	
Mrs. Clara H. Waldo	Portland	Multnomah
Mrs. Ruth Lee Wallace	Salem	Marion
Mrs. R. S. Wallace	Salem	Marion
Mrs. D. Whaley	Corvallis	Benton
Mrs. Stella Whiteside	Corvallis	Benton
Mrs. A. M. Williamson	Corvallis	Benton
Mrs. L. O. Wilson	Corvallis	Benton
Mabel Withycombe	Corvallis	Benton

SUMMARIES.

Degrees Conferred June, 1911.

Bachelor of Science in		
Agriculture	23	
Domestic Science and Art	14	
Forestry	5	
Civil Engineering	18	
Electrical Engineering	10	
Mechanical Engineering	16	
Mining Engineering	9	
Commerce	21	
Pharmacy	8—	124
Master of Science in		
Agriculture	3	
Pharmacy	1—	4
Diploma Granted in		
School of Music	1—	1
Total		129

Classified as to Residence.

State or Territory.		
Oregon (all counties represented)		1575
Alaska	4	
Arizona	1	
California	31	
Colorado	4	
Connecticut	3	
District of Columbia	2	
Idaho	12	
Illinois	7	
Indiana	3	
Iowa	2	
Kansas	3	
Louisiana	2	
Minnesota	5	
Missouri	1	
Montana	4	
Michigan	2	
New York	8	

Nebraska	4	
North Carolina	1	
North Dakota	3	
New Jersey	1	
Oklahoma	2	
Pennsylvania	2	
South Dakota	2	
Texas	1	
Washington	65	
Wisconsin	6—	181

Foreign Countries.

British Columbia	6	
Canada	5	
Denmark	1	
England	1	
Hawaii	1	
India	3	
Japan	3	
Philippine Islands	1	
Russia	1—	22
		1778

Classified According to Courses.

Agriculture	644
Forestry	31
Civil Engineering	76
Electrical Engineering	71
Mechanical Engineering	120
Mining Engineering	29
Pharmacy	48
Commerce	134
Domestic Science and Art	315
Music	76
Optional	22
Poultry Show	120
Summer School	174
Total number of students	1860
Total number of duplicates	82
Balance	1778

Comparative Enrollment.

1888-1889	97
1889-1890	151
1890-1891	201
1891-1892	208
1892-1893	282
1893-1894	240
1894-1895	261
1895-1896	397
1896-1897	316
1897-1898	336
1898-1899	338
1899-1900	405
1900-1901	436
1901-1902	488
1902-1903	541
1903-1904	530
1904-1905	680
1905-1906	735
1906-1907	833
1907-1908	1156
1908-1909	1352
1909-1910	1591
1910-1911	1778

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